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EXPECTED COVERAGE OF A  
CIRCULAR TARGET BY BOMBS  
ALL AIMED AT THE CENTER

by

M. P. Jarnagin, Jr.

Computation and Analysis Laboratory

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ABSTRACT

The exact mathematical formulation is derived for the expected proportional coverage of a circular target from  $n$  weapons all aimed at the center of the target. It is assumed that the weapons fall in a circular normal distribution and that the lethal area of each weapon is a circle of specified radius (cookie-cutter lethality function). Tables are presented which are based on this formulation and which were computed on an IBM 7030 (STRETCH) computer. The computing time per case for coverages correct to two decimal digits is 0.25 to 0.50 seconds.



FOREWORD

The work described in this report was done in the Applied Mathematics Section of the Mathematics Research Group with Foundational Research funds No. R360FR103/2101/R0110101.

The problem was suggested to the author in May 1963 by Mr. F. C. Clodius of the Operations Research Division. The direct and inverse tables represented herein are an extension of tables requested by LTJG P. J. Mode of the Operations Research Division. The author wishes to acknowledge several stimulating discussions of the problem with Mr. Clodius and LTJG Mode.

The programming was done principally by Mr. E. L. Poole, with assistance from Mr. O. A. Thomas. Both are in the Programming Division.

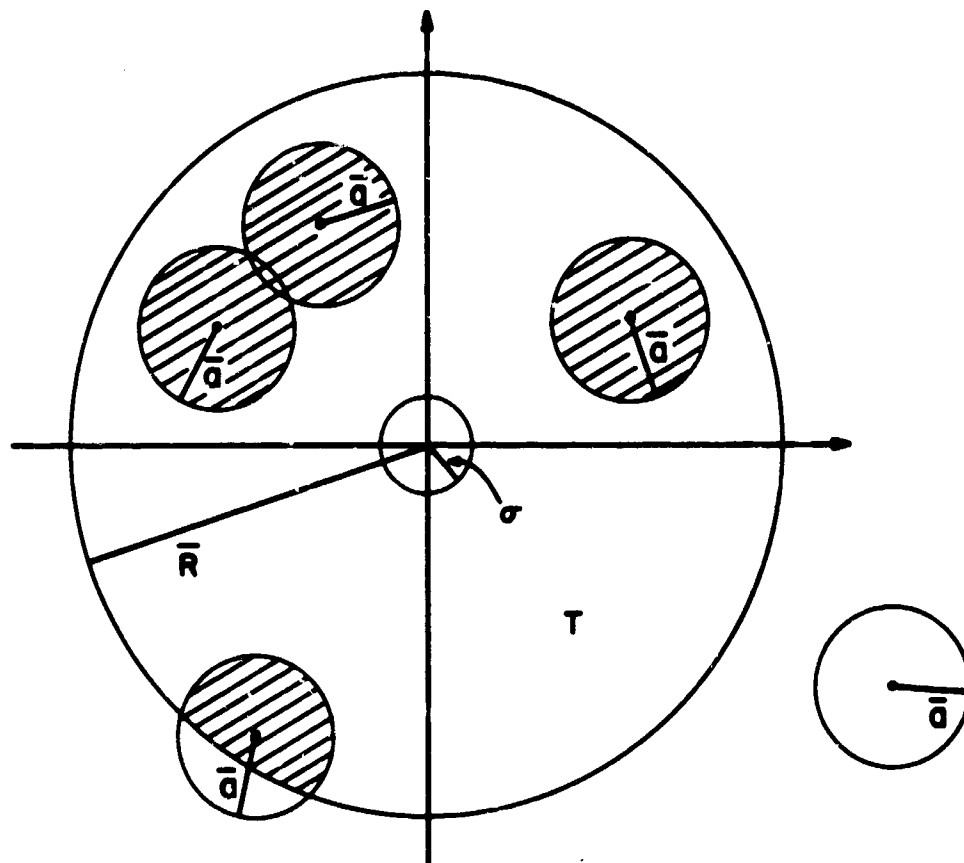
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APPROVED FOR RELEASE:

/s/ BERNARD SMITH  
Technical Director



I. DEFINITION OF THE PROBLEM



TYPICAL PATTERN FOR  $n=5$

FIGURE 1

It is desired to compute the expected proportional damage to a circular target,  $T$ , of radius  $\bar{R}$ , and center at the origin of coordinates, by  $n$  weapons, each of lethal radius  $\bar{a}$ , all aimed at the center of the target, and such that their impact points are governed by a circular normal distribution with mean point at the center of the target and standard deviation  $\sigma$ . Figure 1 depicts a typical pattern for  $n = 5$ .



It is assumed that complete destruction occurs throughout the lethal area of each weapon, or circle of radius  $\bar{a}$  with the impact point of the weapon as center, and that no damage occurs outside this circle. Thus the lethality function, or conditional damage function, is the "cookie-cutter" function. Other lethality functions are considered in the literature, e.g., in [5], [8]. The damaged area of the target is shaded in Figure 1. The expected coverage,  $E$ , is by definition the expected damaged area of the target, in the sense of mathematical expectation, divided by  $\pi\bar{R}^2$ , the area of the target. Thus  $E$  is a fraction between zero and unity.

The problem is investigated in [3] by Germond, who derives an approximate solution under the implied assumption that the lethal radius  $\bar{a}$  is small relative to  $\sigma$ . This solution permits the calculations to be done in terms of either the exponential integral or the incomplete gamma function, both of which are tabulated functions, and is convenient for hand calculations. An approximation is first introduced in [3] when it is stated that the probability that a point at a distance  $r_0$  from the center of the target is not within the lethal area of any of the bombs is  $[1 - (\bar{a}^2/\sigma^2) \exp(-r_0^2/(2\sigma^2))]^n$  (where slight changes in the notation of [3] have been made to secure conformity with the present notation). This involves the assumption that the probability density function,  $f(r, \theta) = [1/(2\pi\sigma^2)] \exp(-r^2/(2\sigma^2))$  for the circular normal distribution under consideration, is constant over a circle with center at  $(r_0, \theta)$  and radius  $\bar{a}$ , and this assumption is not valid even approximately unless  $\bar{a}/\sigma$  is sufficiently small. If the density were constant over the specified circle, with the value  $[1/(2\pi\sigma^2)] \exp(-r_0^2/(2\sigma^2))$ , the probability that a given weapon would fall in the circle would be the product of this density and the area  $\pi\bar{a}^2$ , and it would follow that the probability that all of the  $n$  weapons would fall outside the circle would be  $[1 - (\bar{a}^2/\sigma^2) \exp(-r_0^2/(2\sigma^2))]^n$ , as stated in [3]. The final procedure derived in [3] gives a good approximation for small values of  $\bar{a}/\sigma$ , but is not exact except in a limiting sense as this ratio tends to zero.

The accuracy of the method of [3] depends primarily on the magnitude of  $\bar{a}/\sigma$ , falling off sharply as this ratio becomes significantly greater than unity, and falling off to a lesser extent as the value of  $n$ , the number of weapons, increases. Two numerical cases will be considered to indicate trends. In each case, the value given by the method of [3] will be compared with the value given by the exact method to be presented later in this report.



In Case 1 we consider the values  $\bar{a} = 0.6$ ,  $\bar{R} = 4$ ,  $\sigma = 1$ , and give  $n$  successively the values 1 and 20. When  $n = 1$ , the method of [3] gives  $E = 0.10794$ , and the method of the present report gives  $E = 0.10884$ , which is correct to five decimal digits. These high precision calculations are discussed in Section V. When  $n$  is increased to 20, the method of [3] gives  $E = 0.87853$ , and the exact method gives 0.88179, so that the agreement is not quite so good for the larger value of  $n$ .

In Case 2 we take  $\bar{a} = 3$ ,  $\bar{R} = 6$ ,  $\sigma = 1$ ,  $n = 6$ . The method of [3] gives  $E = 0.215$ , whereas the exact method gives 0.483 (page 47 of the tables). The method of [3] here breaks down completely, not being valid for so large a value of  $\bar{a}/\sigma$ .

In Section 3, an expression is derived which is exact for all values of the parameters  $\bar{a}$ ,  $\bar{R}$ ,  $\sigma$ ,  $n$ , as follows:

$$E = 1 - \frac{2}{R^2} \int_0^R [1 - P(a,r)]^n r \, dr, \quad (1)$$

where the quantities  $\bar{R}$ ,  $\bar{a}$  have been normalized with respect to  $\sigma$  to give  $R$ ,  $a$  respectively; that is,  $R = \bar{R}/\sigma$ ,  $a = \bar{a}/\sigma$ . Generally throughout the report, except where the contrary is indicated by the barred symbols, it is understood that  $\sigma = 1$  and that the parameters  $R$ ,  $a$  are the normalized ones. The function  $P(a,r)$  is known as the circular coverage function, [1], [2], and is defined by

$$P(a,r) = e^{-\frac{r^2}{2}} \int_0^a e^{-\frac{x^2}{2}} I_0(xr) x \, dx \quad (2)$$

where  $I_0(t)$  is the modified Bessel function of the first kind of order zero, [6]. The first partial derivatives of  $P(a,r)$  are:

$$\frac{\partial P(a,r)}{\partial a} = a e^{-\frac{a^2+r^2}{2}} I_0(ar) \quad (3)$$

$$\frac{\partial P(a,r)}{\partial r} = -a e^{-\frac{a^2+r^2}{2}} I_1(ar) \quad (4)$$

where  $I_1(t)$  is the modified Bessel function of the first kind of first order, [6].



## II. METHOD OF COMPUTING EXPECTED COVERAGE

Although equation (1) provides an exact representation, in integral form, for the expected coverage  $E$  for all positive real values of the parameters  $a$  and  $R$  and all positive integer values of  $n$ , there is no known method, for integers  $n > 1$ , for evaluating the integral in closed form in terms of elementary functions and non-elementary functions for which efficient machine computing routines exist. For the special case  $n = 1$ , which is of interest in the study of other types of coverage problem (see [7]), a method does exist for computing  $E$  in closed form in terms of the exponential function, the circular coverage function, and the Bessel function  $I_1(t)$ . This formula for the case  $n = 1$  was deduced from the analysis of Germond in [4] and is stated in equation (5) below. A derivation is given in [7]. The formula, expressed as an expected proportional coverage of a target of radius  $R$  as in the present report, and designated here as  $E_0$ , is as follows:

$$E_0 = \frac{1}{R^2} [R^2 P(a, R) + a^2 P(R, a) - aR e^{-\frac{a^2 + R^2}{2}} I_1(aR)] \quad (5)$$

where  $I_1(t)$  is the modified Bessel function of the first kind of first order, [6]. If this expression is multiplied by  $\pi R^2$  to give the expected damaged area or average casualty area,  $A_0$ , the result makes obvious the symmetrical way in which  $a$  and  $R$  enter the formula:

$$A_0 = \pi [R^2 P(a, R) + a^2 P(R, a) - aR e^{-\frac{a^2 + R^2}{2}} I_1(aR)] \quad (6)$$

The corresponding results in the analysis of the present report, taking  $n = 1$  in equation (1) and then multiplying by  $\pi R^2$ , are

$$E = \frac{2}{R^2} \int_0^R P(a, t) t \, dt \quad (7)$$

$$A = 2\pi \int_0^R P(a, t) t \, dt \quad (8)$$

and it is proved in [7] that  $E_0 = E$  and  $A_0 = A$ .



For general positive integer values of  $n$ , the integral in equation (1) is evaluated by a method of numerical quadrature. The interval of integration,  $[0, R]$ , is partitioned by successive doubling of the number  $m$  of subintervals, starting with  $m = 1$ , then  $m = 2, 4, 8, \dots$ , until a preassigned criterion of accuracy is met. Rigorous upper and lower bounds,  $l$  and  $k$  respectively, for the value of  $E$  are computed at each stage. An upper bound for the error committed in taking  $x \equiv (l + k)/2$  as an approximation to the value of  $E$  is then given by  $(l - k)/2$ . Since, as will be shown,  $(l - k)/2$  never exceeds  $1/m$ , it can be concluded that a partition of  $[0, R]$  into 2048 or fewer subintervals will always be sufficient for computing an approximation  $x$  which differs by less than 0.0005 from the true but unknown value of  $E$ , or for computing an approximation which is accurate to three decimal digits. In many cases in practice  $(l - k)/2$  is much smaller than  $1/m$ , so that in these cases the actual number of subintervals required to compute an approximation of a specified accuracy is much smaller than the upper bound indicated by theory.

The method which is to be described for general values of  $n$ , and which has been programmed for the IBM 7030 (STRETCH) computer, is valid for the case  $n = 1$ , as it is for all positive integer values of  $n$ . However, for the case  $n = 1$ , the method referred to above, giving the result in closed form in terms of the Bessel function  $I_1(t)$  and other functions for which efficient subroutines exist, is faster and more efficient than the general method, since it does not require a numerical quadrature with an unknown, possibly large, number of subintervals.

We now describe the general method of computing the expected coverage  $E$  from equation (1) by numerical quadrature. For this description, the following notation is convenient:

$$Q(r) \equiv [1 - P(a, r)]^n. \quad (9)$$

Equation (1) then takes the form

$$E = 1 - \frac{2}{R^2} \int_0^R Q(r) r dr. \quad (10)$$



It is assumed that normalized parameters  $a$  and  $R$ , and a positive integer  $n$ , have been assigned. We introduce the further notation

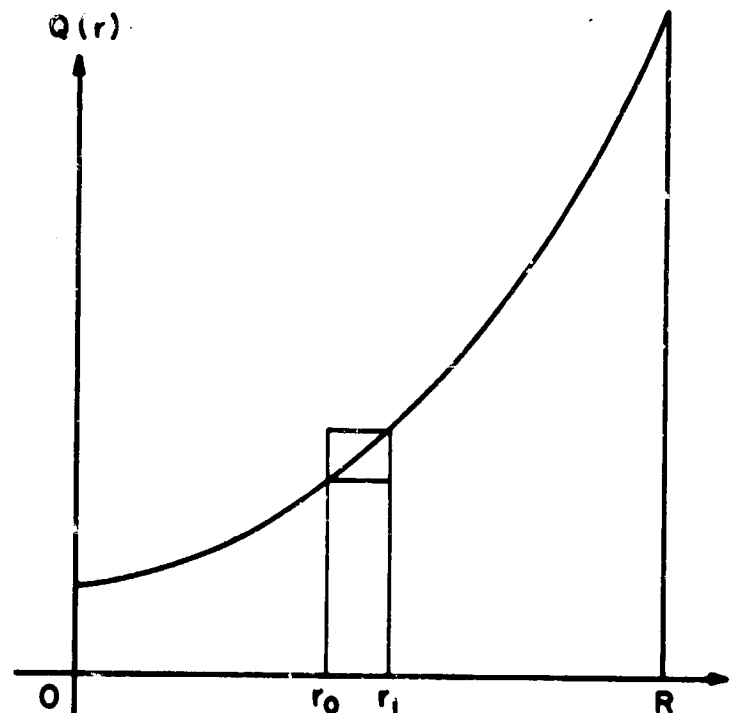
$$I \equiv \int_0^R Q(r) r dr \equiv \int_0^R [1 - P(a, r)]^n r dr \quad (11)$$

so that

$$E = 1 - \frac{2}{R^2} \cdot I \quad (12)$$

The principal problems are then the approximate evaluation of the integral  $I$  by numerical quadrature, and the determination of bounds for the associated error. The corresponding results for  $E$  then follow easily by equation (12).

The circular coverage function,  $P(a, r)$ , for fixed  $a$ , is a strictly decreasing function of  $r$ , as is shown by equation (4), and as is evident intuitively from the definition of this function as a



GEOMETRY OF INEQUALITIES (13)

FIGURE 2



probability, [1], [2]. Hence  $Q(r)$  by its definition in equation (9) is a strictly increasing function of  $r$ . Hence in any interval  $[r_0, r_1]$  such that  $0 \leq r_0 < r_1 \leq R$ , we have

$$Q(r_0) \int_{r_0}^{r_1} r dr < \int_{r_0}^{r_1} Q(r) r dr < Q(r_1) \int_{r_0}^{r_1} r dr, \quad (13)$$

or, performing the integrations of  $\int r dr$ ,

$$Q(r_0) \frac{r_1^2 - r_0^2}{2} < \int_{r_0}^{r_1} Q(r) r dr < Q(r_1) \frac{r_1^2 - r_0^2}{2}. \quad (14)$$

To describe the method by which inequalities (14) are used to get upper and lower bounds for the value of the integral  $I$ , it is convenient to suppose for illustrative purposes that  $R = 8$ , and to divide  $[0, 8]$  into 4 subintervals with the points  $r = 0, 2, 4, 6, 8$ , and subsequently into 8 subintervals. The process of halving the length of the subinterval at each stage of the numerical quadrature will then be clear.

Taking initially 4 subintervals as stated above, we define upper and lower integrals  $\bar{I}_4$  and  $\underline{I}_4$  as follows:

$$2\bar{I}_4 = Q(2)(2^2 - 0^2) + Q(4)(4^2 - 2^2) + Q(6)(6^2 - 4^2) + Q(8)(8^2 - 6^2) \quad (15)$$

$$2\underline{I}_4 = Q(0)(2^2 - 0^2) + Q(2)(4^2 - 2^2) + Q(4)(6^2 - 4^2) + Q(6)(8^2 - 6^2) \quad (16)$$

It is then clear from (14) that we have

$$\underline{I}_4 < I < \bar{I}_4. \quad (17)$$



We rewrite these in the forms

$$2\bar{I}_4 = + [Q(2) \cdot 2^2 + Q(4) \cdot 4^2 + Q(6) \cdot 6^2 + Q(8) \cdot 8^2] \\ - [Q(2) \cdot 0^2 + Q(4) \cdot 2^2 + Q(6) \cdot 4^2 + Q(8) \cdot 6^2] \quad (18)$$

$$2\underline{I}_4 = - [Q(0) \cdot 0^2 + Q(2) \cdot 2^2 + Q(4) \cdot 4^2 + Q(6) \cdot 6^2] \\ + [Q(0) \cdot 2^2 + Q(2) \cdot 4^2 + Q(4) \cdot 6^2 + Q(6) \cdot 8^2] \quad (19)$$

If we now divide the interval  $[0, R]$  or  $[0, 8]$  into 8 sub-intervals by using all the points  $0, 1, 2, \dots, 8$ , and form the corresponding sums  $\bar{I}_8$  and  $\underline{I}_8$ , we find

$$2\bar{I}_8 = + [Q(1) \cdot 1^2 + Q(2) \cdot 2^2 + \dots + Q(7) \cdot 7^2 + Q(8) \cdot 8^2] \\ - [Q(1) \cdot 0^2 + Q(2) \cdot 1^2 + \dots + Q(7) \cdot 6^2 + Q(8) \cdot 7^2] \quad (20)$$

$$2\underline{I}_8 = - [Q(0) \cdot 0^2 + Q(1) \cdot 1^2 + \dots + Q(6) \cdot 6^2 + Q(7) \cdot 7^2] \\ + [Q(0) \cdot 1^2 + Q(1) \cdot 2^2 + \dots + Q(6) \cdot 7^2 + Q(7) \cdot 8^2] \quad (21)$$

The first brackets in equations (18), (19), (20), (21) are similar to each other (but no two are identical). The quantities in the first brackets in (18) and (20) are denoted as  $f$  (for  $m = 4$  and  $m = 8$  respectively). Similarly, the first brackets in (19) and (21) (not including the negative signs) are denoted as  $f_1$ . Thus the quantities  $f, f_1$  are defined for each  $m$  ( $m = 1, 2, 4, 8, \dots$ ), and it is seen that, for a given  $m$ ,

$$f = f_1 + Q(8) \cdot 8^2 \quad (22)$$

or, in general,

$$f = f_1 + Q(R) \cdot R^2 \quad (23)$$

The second brackets in equations (18) and (20) (not including the negative signs) are denoted as  $h$ , for the pertinent value of  $m$ . The second brackets in (19) and (21) are denoted as  $g_1$  (the notation  $g$  being reserved for a slightly different quantity to be introduced).



For general  $m$  ( $m = 1, 2, 4, 8, \dots$ ), if  $R/m$  is denoted as  $\delta$ , the sums  $f$ ,  $f_1$ ,  $g_1$ ,  $h$  can be represented as follows:

$$f = \sum_{j=0}^m Q(j\delta) \cdot (j\delta)^2 = f_1 + Q(R) \cdot R^2 \quad (24)$$

$$f_1 = \sum_{j=0}^{m-1} Q(j\delta) \cdot (j\delta)^2 \quad (25)$$

$$g_1 = \sum_{j=0}^{m-1} Q(j\delta) [(j+1)\delta]^2 \quad (26)$$

$$h = \sum_{j=0}^{m-1} Q[(j+1)\delta] \cdot (j\delta)^2 \quad (27)$$

Also, for a reason which will become clear shortly, we define  $g$  as follows:

$$g = g_1 + Q(R) \cdot R^2 \quad (28)$$

From the definitions of  $f$ ,  $f_1$ ,  $g$ ,  $g_1$ ,  $h$  in equations (24) - (28), we have, extending equations (18) - (21) to general  $m$ ,  $m = 1, 2, 4, 8, \dots$ ,

$$\bar{I}_m = \frac{f - h}{2} \quad (29)$$

$$\underline{I}_m = \frac{g_1 - f_1}{2} \quad (30)$$

But, solving (24) and (28) for  $f_1$  and  $g_1$  and substituting in (30),

$$\underline{I}_m = \frac{[g - Q(R) \cdot R^2] - [f - Q(R) \cdot R^2]}{2} = \frac{g - f}{2} , \quad (31)$$



and hence

$$\bar{I}_m = \frac{f - h}{2} \quad (32)$$

$$\underline{I}_m = \frac{g - f}{2} \quad (33)$$

For every value of  $m$  considered,  $m = 1, 2, 4, 8, \dots$ , we have

$$\underline{I}_m < I < \bar{I}_m, \quad (34)$$

as can be proved by applying inequalities (14) to each subinterval and summing.

We define upper and lower bounds,  $\ell$  and  $k$  respectively, for the expected coverage  $E$ , as follows:

$$\ell = 1 - \frac{2}{R^2} \underline{I}_m = 1 - \frac{2}{R^2} \left( \frac{g - f}{2} \right) = 1 - \frac{g - f}{R^2} \quad (35)$$

$$k = 1 - \frac{2}{R^2} \bar{I}_m = 1 - \frac{2}{R^2} \left( \frac{f - h}{2} \right) = 1 - \frac{f - h}{R^2} \quad (36)$$

Note that the upper bound  $\ell$  is associated with  $\underline{I}_m$  and the lower bound  $k$  with  $\bar{I}_m$  because of the minus sign in equation (12). We now have

$$k < E < \ell \quad (37)$$

and

$$\ell - k = \frac{(f - h) - (g - f)}{R^2}. \quad (38)$$

The number  $m$  of subintervals into which the interval  $[0, R]$  is divided is increased by successive doubling,  $m = 1, 2, 4, 8, \dots$ , until we have

$$\ell - k \leq y, \quad (39)$$



where  $y$  is a preassigned tolerance, often taken as

$$y = 0.001 \quad . \quad (40)$$

But  $y$  is made an input parameter of the program to facilitate the use of values other than 0.001 if desired. Inequality (39) will necessarily be satisfied by taking a sufficiently large value of  $m$ , because of the relation  $(l - k)/2 \leq 1/m$ , as will be proved. Then if  $E_1$  (denoted as  $x$  in the program) represents the approximation

$$E_1 = \frac{l + k}{2} \quad (41)$$

and  $E$  represents the true but unknown value of the expected proportional coverage, we will have

$$|E_1 - E| \leq \frac{y}{2} \quad , \quad (42)$$

so that, if  $y = 0.001$ , the error is not greater numerically than 0.0005, as is required for three decimal digit accuracy.

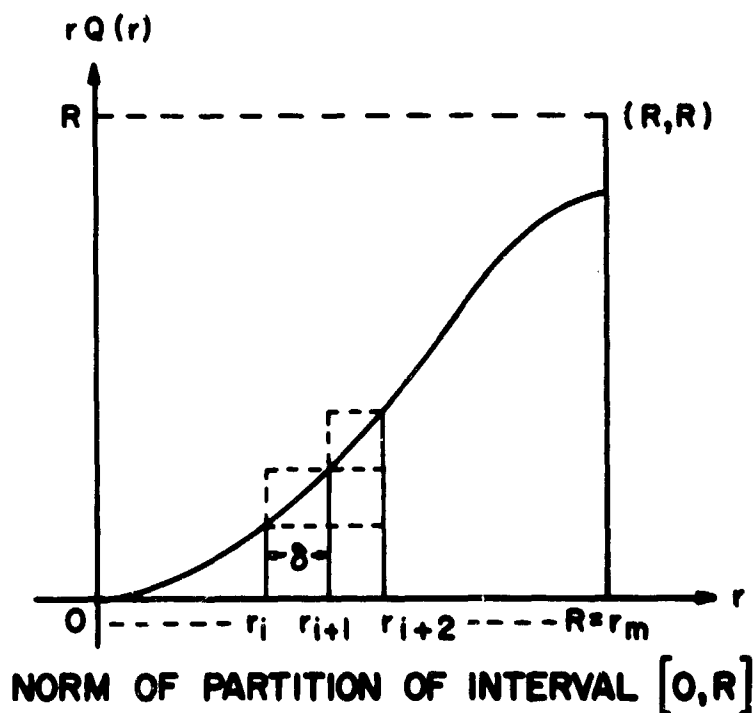


FIGURE 3



We now prove the statement that  $(l - k)/2$ , the upper bound for the error committed in taking  $(l + k)/2$  as an approximation for the expected coverage  $E$ , is not greater than  $1/m$ , in the case in which the interval  $[0, R]$  is divided into  $m$  equal subintervals in evaluating the integral in equation (1). This can be put in a more general form in case the interval of integration is partitioned into subintervals not all of which are of equal length, as is done in the computation of the inverse tables in the present report. Let  $\delta$  denote the norm of the partition, i.e., the length of the longest subinterval. Then an upper bound for the error is  $\delta/R$ , and this reduces to  $1/m$  in the case in which  $m$  equal subintervals are used so that  $\delta = R/m$ . The upper bound will be derived in the more general form  $\delta/R$ .

See Figure 3, which shows the graph of the function  $r Q(r)$ , the complete integrand of equations (10) and (11) (whereas in Figure 2 only  $Q(r)$  is graphed). Suppose the interval  $[0, R]$  is partitioned into  $m$  subintervals, not necessarily of equal length, by the points  $0 = r_0 < r_1 < r_2 < \dots < r_m = R$ . Since the integrand  $r Q(r)$  is a strictly increasing function of  $r$ , upper and lower bounds,  $\bar{I}_m^*$  and  $\underline{I}_m^*$  respectively, for the integral  $I$  of equation (11) are provided by the expressions

$$\bar{I}_m^* = \sum_{j=0}^{m-1} r_{j+1} Q(r_{j+1}) (r_{j+1} - r_j) \quad (43)$$

$$\underline{I}_m^* = \sum_{j=0}^{m-1} r_j Q(r_j) (r_{j+1} - r_j) \quad (44)$$

These are not the same as the bounds  $\bar{I}_m$ ,  $\underline{I}_m$  of equations (29), (30), since here we are not performing the integration of

$\int r dr$  (see inequalities (14)) which is part of the development of

$\bar{I}_m$ ,  $\underline{I}_m$ . We shall show in fact that

$$\underline{I}_m^* < \underline{I}_m < I < \bar{I}_m < \bar{I}_m^* . \quad (45)$$



If bounds  $\bar{I}_m$ ,  $\underline{I}_m$ , generalizing those of equations (29), (30), are worked out, based on inequalities (14), for the present situation where the subintervals are not necessarily all of the same length, they can be expressed in the forms

$$\bar{I}_m = \frac{1}{2} \sum_{j=0}^{m-1} Q(r_{j+1}) (r_{j+1}^2 - r_j^2) \quad (46)$$

$$\underline{I}_m = \frac{1}{2} \sum_{j=0}^{m-1} Q(r_j) (r_{j+1}^2 - r_j^2) \quad (47)$$

To prove that  $\bar{I}_m < \bar{I}_m^*$ , we have, using equations (43) and (46) and factoring  $r_{j+1}^2 - r_j^2$  as  $(r_{j+1} + r_j)(r_{j+1} - r_j)$ ,

$$2(\bar{I}_m^* - \bar{I}_m) = \sum_{j=0}^{m-1} Q(r_{j+1}) (r_{j+1} - r_j) [2r_{j+1} - (r_{j+1} + r_j)] \quad (48)$$

$$\bar{I}_m^* - \bar{I}_m = \frac{1}{2} \sum_{j=0}^{m-1} Q(r_{j+1}) (r_{j+1} - r_j)^2 \quad (49)$$

and since every term on the right is positive, it follows that  $\bar{I}_m^* - \bar{I}_m$  is positive, or  $\bar{I}_m < \bar{I}_m^*$ . A very similar analysis shows that  $\underline{I}_m^* < \underline{I}_m$ , and thus (45) is established.

We next obtain a bound for the difference  $\bar{I}_m^* - \underline{I}_m^*$ . From equations (43) and (44),

$$\bar{I}_m^* - \underline{I}_m^* = \sum_{j=0}^{m-1} [r_{j+1} Q(r_{j+1}) - r_j Q(r_j)] (r_{j+1} - r_j) \quad (50)$$

and, denoting the norm of the partition, or  $\max (r_{j+1} - r_j)$ , by  $\delta$ , we have

$$\bar{I}_m^* - \underline{I}_m^* \leq \delta \sum_{j=0}^{m-1} [r_{j+1} Q(r_{j+1}) - r_j Q(r_j)] \quad (51)$$



The sum now "telescopes" and gives the following results:

$$\bar{I}_m^* - \underline{I}_m^* \leq \delta[r_m Q(r_m) - r_0 Q(r_0)] \quad (52)$$

$$\bar{I}_m^* - \underline{I}_m^* \leq \delta R \quad (53)$$

since  $r_m = R$ ,  $Q(r_m) < 1$ ,  $r_0 = 0$ . Hence, from inequalities (45),

$$\bar{I}_m - \underline{I}_m \leq \delta R \quad (54)$$

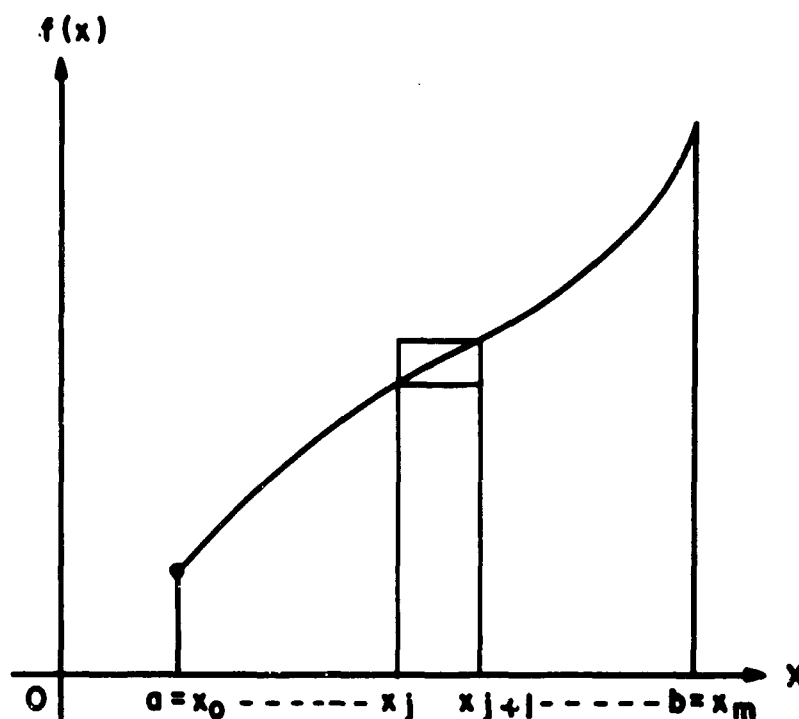
Therefore, if  $(\bar{I}_m + \underline{I}_m)/2$  is taken as an approximation for the value of the integral  $I$ , the upper bound  $(\bar{I}_m - \underline{I}_m)/2$  for the error satisfies  $(\bar{I}_m - \underline{I}_m)/2 \leq \delta R/2$ . When the approximation for  $E$  is computed by equation (12), this error is multiplied by  $2/R^2$ . The final result is that an upper bound for the error committed in taking  $(l + k)/2$  as an approximation for the value of  $E$  is  $(\delta R/2) \cdot (2/R^2)$ , or  $\delta/R$ , as was to be proved.

It can also be shown that the use of the bounds  $\bar{I}_m$  and  $\underline{I}_m$  for the integral  $I$ , leading through equations (35) and (36) to the bounds  $l$  and  $k$  and then in equation (41) to the approximation  $E_1$  for the expected coverage  $E$ , is in a sense better than the use of the trapezoidal rule for performing the numerical quadrature. For if the bounds  $\bar{I}_m^*$  and  $\underline{I}_m^*$  for the value of  $I$  were used, and these are cruder bounds than  $\bar{I}_m$  and  $\underline{I}_m$  as shown by inequalities (45), and if  $(\bar{I}_m^* + \underline{I}_m^*)/2$  were then taken as an approximation for the value of  $I$ , one would have approximated  $I$  by the trapezoidal rule, as will be shown.

To make the argument general, suppose that it is desired to evaluate the integral

$$J = \int_a^b f(x) dx \quad , \quad (55)$$





GEOMETRY OF INEQUALITIES (56)

FIGURE 4

where  $f(x)$  is a continuous monotonically increasing function of  $x$  on the interval  $[a, b]$ . The monotonic character of the integrand of equation (11) plays an essential role in the present discussion, and hence we impose the condition of monotonicity on the function  $f(x)$ . We partition the interval  $[a, b]$  into  $m$  subintervals, not necessarily of equal lengths, by the points

$$a = x_0 < x_1 < x_2 < \dots < x_{m-1} < x_m = b.$$

In any subinterval  $[x_j, x_{j+1}]$  we have, since  $f(x)$  is an increasing function (see Figure 4),

$$f(x_j) (x_{j+1} - x_j) \leq \int_{x_j}^{x_{j+1}} f(x) dx \leq f(x_{j+1}) (x_{j+1} - x_j) \quad (56)$$



Summing over all the subintervals of the partition,

$$\sum_{j=0}^{m-1} f(x_j) (x_{j+1} - x_j) \leq \int_a^b f(x) dx \leq \sum_{j=0}^{m-1} f(x_{j+1}) (x_{j+1} - x_j), \quad (57)$$

or, if we use the notation  $\underline{J}$  and  $\bar{J}$  for the first and last expressions, respectively, in inequalities (57),

$$\underline{J} \leq J \leq \bar{J}. \quad (58)$$

If we now denote by  $J_1$  the approximation  $(\underline{J} + \bar{J})/2$  for the value of  $J$ , we have, from the definitions of  $\underline{J}$  and  $\bar{J}$ ,

$$J_1 = \frac{\underline{J} + \bar{J}}{2} = \sum_{j=0}^{m-1} \frac{f(x_j) + f(x_{j+1})}{2} (x_{j+1} - x_j) \quad (59)$$

This is the trapezoidal rule for the approximation of the value of  $J$  using subintervals not necessarily all of the same length. If the subintervals are all equal,  $x_{j+1} - x_j = h$  ( $j = 0, 1, 2, \dots, m-1$ ), it reduces to the familiar form

$$J_1 = \frac{1}{2} h [f(x_0) + 2f(x_1) + 2f(x_2) + \dots + 2f(x_{m-1}) + f(x_m)] \quad (60)$$

From inequalities (58) it follows that the absolute error in using  $J_1$  as an approximation for  $J$  does not exceed  $(\bar{J} - \underline{J})/2$ .

Thus it has been shown that in the case of a monotonically increasing integrand  $f(x)$ , the approximation for the value of  $J$

or  $\int_a^b f(x) dx$  by  $J_1$  or  $(\underline{J} + \bar{J})/2$ , where  $\bar{J}$  and  $\underline{J}$  are upper and

lower bounds formed in the manner shown in inequalities (57), is equivalent to the approximation obtained by the use of the trapezoidal rule. By similar methods to those used in obtaining inequality (53), it can be shown that

$$\bar{J} - \underline{J} \leq \delta[f(b) - f(a)], \quad (61)$$



where  $\delta$  is the norm of the partition or length of the longest sub-interval, and hence  $(\bar{J} - \underline{J})/2$ , the upper bound for the absolute error, does not exceed  $\delta[f(b) - f(a)]/2$ .

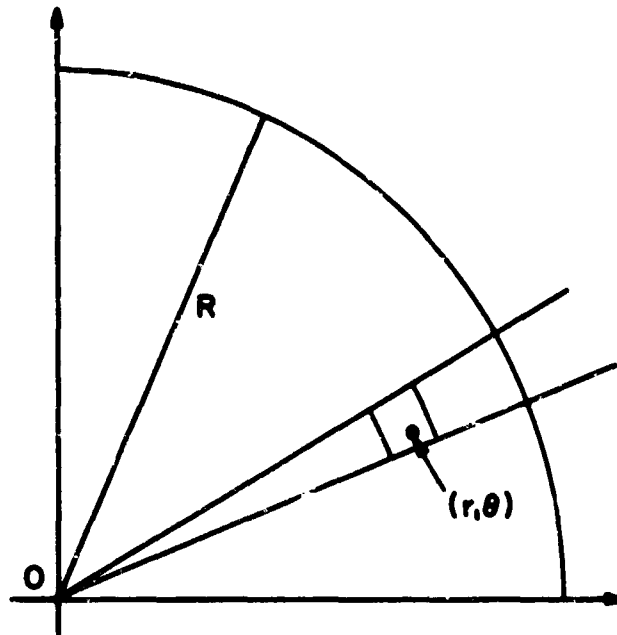
The foregoing analysis would apply directly if  $\bar{I}_m^*$  and  $\underline{I}_m^*$ , the bounds represented in equations (43) and (44), were used in evaluating  $I$ . The integrand  $f(x)$  would correspond to  $r Q(r)$ , which is an increasing function of  $r$ , as has been pointed out. If  $(\bar{I}_m^* + \underline{I}_m^*)/2$  were taken as the approximation for  $I$ , it would be equivalent to evaluating  $I$  by the trapezoidal rule. But the bounds  $\bar{I}_m$  and  $\underline{I}_m$ , which are actually used, are still closer, as shown by inequalities (45). It is in this sense that the method which is used can be said to be better than an alternative method in which the integral  $I$  of equation (11) is evaluated by the trapezoidal rule.

### III. DERIVATION OF EQUATION (1)

In the derivation of equation (1), the first step is to get an expression for the probability that a specified point  $A$  at a distance  $r$  from the origin (center of target and aim point) is not inside the lethal area of any of the  $n$  bombs.  $A$  is inside the lethal area of any designated one of the bombs if and only if the impact point of that bomb is inside a circle with  $A$  as center and radius  $a$ . Distances here are the normalized ones  $a = \bar{a}/\sigma$ , etc. From the definition of the circular coverage function, [1], [2], this last probability, and hence the probability that  $A$  is inside the lethal area of the designated bomb, is  $P(a, r)$ . Hence the probability that  $A$  is not inside the lethal area of the specified bomb is  $1 - P(a, r)$ . The impact points of the bombs being independent of one another, the probability that the point  $A$  is outside the lethal areas of all of the bombs is  $[1 - P(a, r)]^n$ .

Now consider a small polar element of area  $rdrd\theta$  of the target (Figure 5), and let  $(r, \theta)$  denote any point of this element. Since, neglecting infinitesimals, every point of the element of area is at the same distance  $r$  from the origin, the probability that the element of area is outside the lethal area of all of the bombs, i.e., is not damaged, is  $[1 - P(a, r)]^n$ , and hence the probability that it is destroyed is  $1 - [1 - P(a, r)]^n$ . If it is destroyed, the contribution to the damaged area is  $rdrd\theta$ .





ELEMENT OF AREA OF TARGET

FIGURE 5

Hence the contribution to the expected damaged area is  $\{1 - [1 - P(a, r)]^n\} r dr d\theta$ . The total expected damaged area is the integral of this over the target, and the expected proportional coverage,  $E$ , is obtained by dividing this result by the area of the target,  $\pi R^2$ . Thus we have

$$E = \frac{1}{\pi R^2} \int_{\theta=0}^{2\pi} \int_{r=0}^R \{1 - [1 - P(a, r)]^n\} r dr d\theta \quad (62)$$

Since the integrand is independent of  $\theta$ , we can integrate immediately with respect to  $\theta$  and obtain

$$E = \frac{2}{R^2} \int_0^R \{1 - [1 - P(a, r)]^n\} r dr \quad (63)$$

The first term of the integrand here can be integrated to give  $(2/R^2) \cdot (R^2/2)$  or 1, and thus we have the desired result

$$E = 1 - \frac{2}{R^2} \int_0^R [1 - P(a, r)]^n r dr, \quad (64)$$

which is equation (1).



The foregoing proof is not entirely above criticism from the point of view of mathematical rigor. A completely rigorous proof, leading to the same result, has been worked out, but it would make this section excessively long.

#### IV. DESCRIPTION OF TABLES

There are two tables, a direct table giving expected coverage  $E$  as a function of  $a$ ,  $R$ , and  $n$ , and an inverse table giving  $n$  as a function of  $a$ ,  $R$ , and  $E$ ; that is, the minimum number of bombs which will give at least a specified  $E$  with specified values of  $a$  and  $R$ . All values of  $a$  and  $R$  are normalized values. A total of 68 values of  $a$  and 57 values of  $R$  have been specified for both the direct and the inverse tables. These values are as follows:

$$a = 0.005(0.005)0.05(0.01)0.10(0.02)0.20$$

$$(0.05)1(0.1)2(0.2)4(0.5)10 ;$$

$$R = 0.05, 0.1(0.1)4(0.5)12 .$$

For the direct tables,  $n = 1(1)20$ , and for the inverse tables,  $E = 0.05(0.05)0.95$ .

In the direct tables,  $n$  is constant on a given page,  $a$  is constant on each line and  $R$  on each column. This table was computed with the tolerance  $y = 0.01$ , so that the maximum error is 0.005. Nevertheless, the results are printed to three decimal digits, since the actual error in general is substantially less than the maximum possible error.

In the inverse tables,  $E$  is constant on each page,  $a$  on each line, and  $R$  on each column. The notation \*\*\* means "more than 999". If it is found that 999 bombs are insufficient to give the required  $E$  for given values of  $a$  and  $R$ , this notation is printed and no further attempt is made to determine the exact value of  $n$ . Although 68 values of  $a$  have been specified, only 60 lines of data are printed on each page in the inverse tables. If the line for some value of the lethal radius  $a$  consists entirely of the symbol \*\*\*, so will all lines for smaller values of  $a$ . If one line consists entirely of 1's, so will all lines for larger values of  $a$ . Advantage is taken of these facts to reduce the number of lines of data per page to 60 instead of 68.



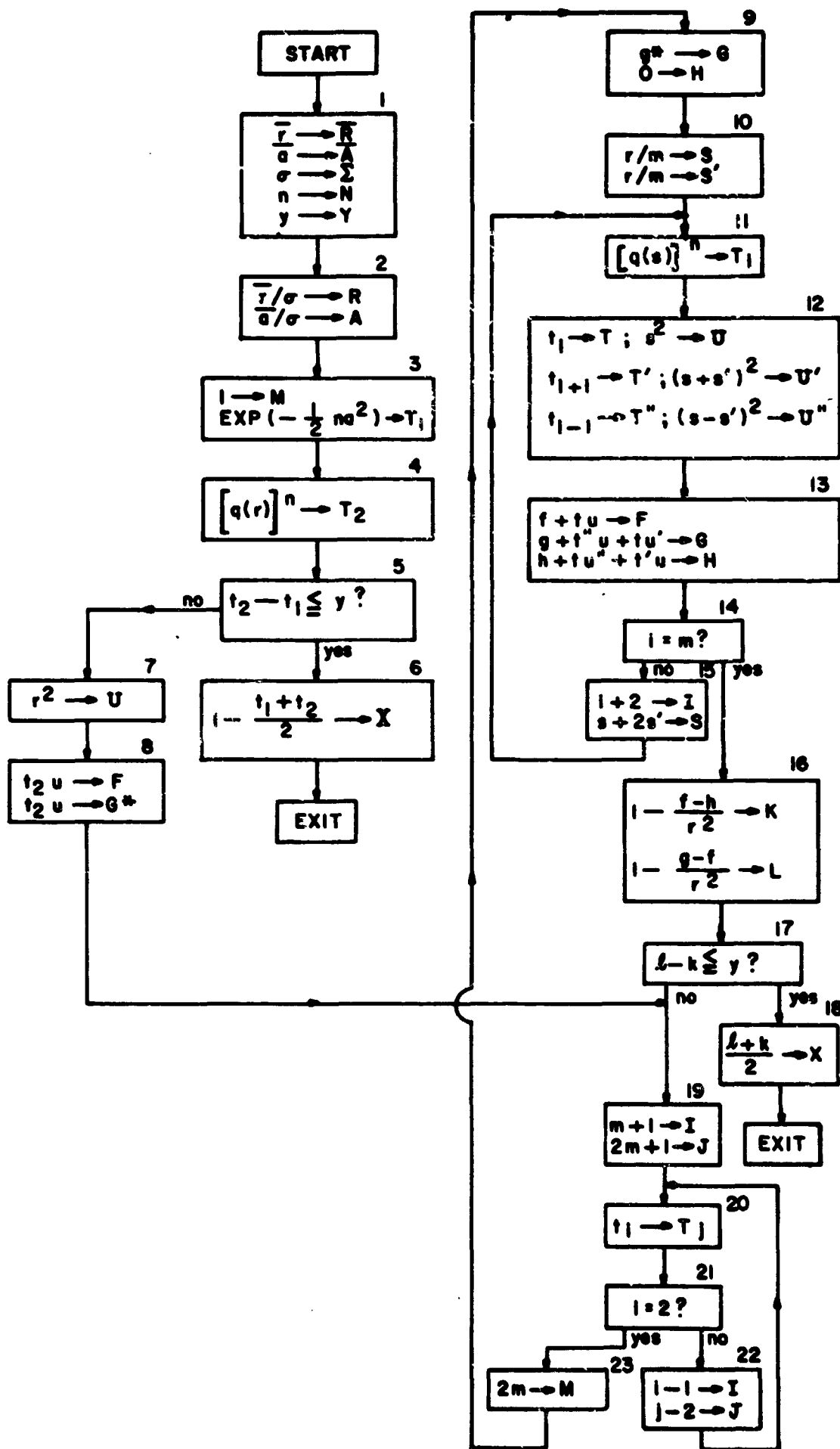
## V. MACHINE COMPUTING PROGRAM

The analysis which has been given is used in a program represented in Flow Chart 1. Any positive real values of  $\bar{a}$ ,  $\bar{R}$ ,  $\sigma$  and the tolerance  $y$  can be entered at Box 1 of the flow chart, and any positive integer value of  $n$ . This flow chart follows a practice which is common in programming, of denoting a machine location by a capital letter and the number stored in the location by the corresponding small or lower case letter. Thus the numbers  $\bar{a}$  and  $y$  are entered in locations  $\bar{A}$  and  $Y$  respectively at Box 1. A special comment is required with regard to the target radius, which was denoted as  $\bar{R}$  (unnormalized) or  $R$  (normalized) in the foregoing analysis, while  $r$  was the variable of integration. In the flow chart, however,  $\bar{r}$  is the unnormalized and  $r$  the normalized target radius, and  $\bar{R}$  and  $R$  the corresponding locations, in accordance with the programming convention referred to. The normalized target radius  $r$  and lethal radius  $a$  are computed at Box 2 and stored in locations  $R$  and  $A$ .

If the tolerance is met by using only one subdivision of  $[0, R]$ , i.e., by taking  $m = 1$ , the program makes an early exit at Box 6. This is based on the following considerations. If  $m = 1$ , it is found that  $l$  and  $k$ , equations (35), (36), are given by  $l = 1 - Q(0)$ ,  $k = 1 - Q(R)$ , where  $Q(r)$  is as defined in equation (9), and hence  $l - k = Q(R) - Q(0)$ .  $Q(0)$  and  $Q(R)$  are placed in locations  $T_1$  and  $T_2$  respectively at Boxes 3 and 4, and the difference,  $t_2 - t_1$ , is compared with the tolerance  $y$  at Box 5. If the tolerance is met, the result,  $(l + k)/2$  or  $1 - (t_1 + t_2)/2$ , is computed and placed in the output location,  $X$ , at Box 6.

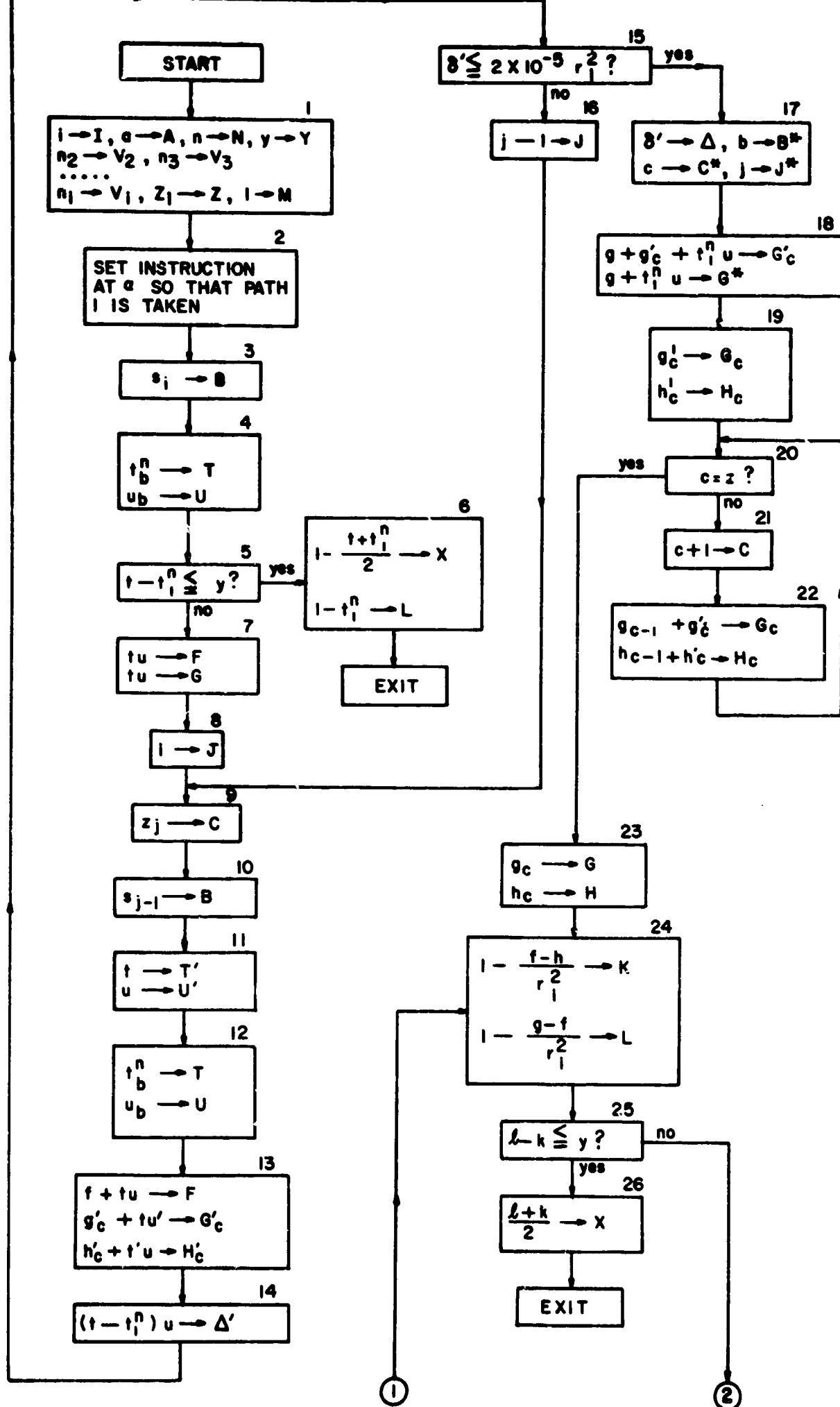
If the answer is No at Box 5, the program goes into the regular procedure of successive doubling of the number  $m$  of sub-intervals (see Box 23) until the tolerance is ultimately met at Box 17 and the approximation  $(l + k)/2$  is placed in location  $X$  at Box 18. At Boxes 19-22 at each stage, in preparation for doubling the value of  $m$ , the values of  $Q(r)$  which have previously been computed are spaced farther apart to make room for inserting new values. For example, when  $m = 4$ , values of  $Q(r)$  are in locations  $T_1$  to  $T_5$  inclusive. Before proceeding to the detailed calculations for  $m = 8$ , these values are placed in locations  $T_1, T_3, T_5, T_7, T_9$ , to clear locations  $T_2, T_4$ , etc., for new values when  $m = 8$ .





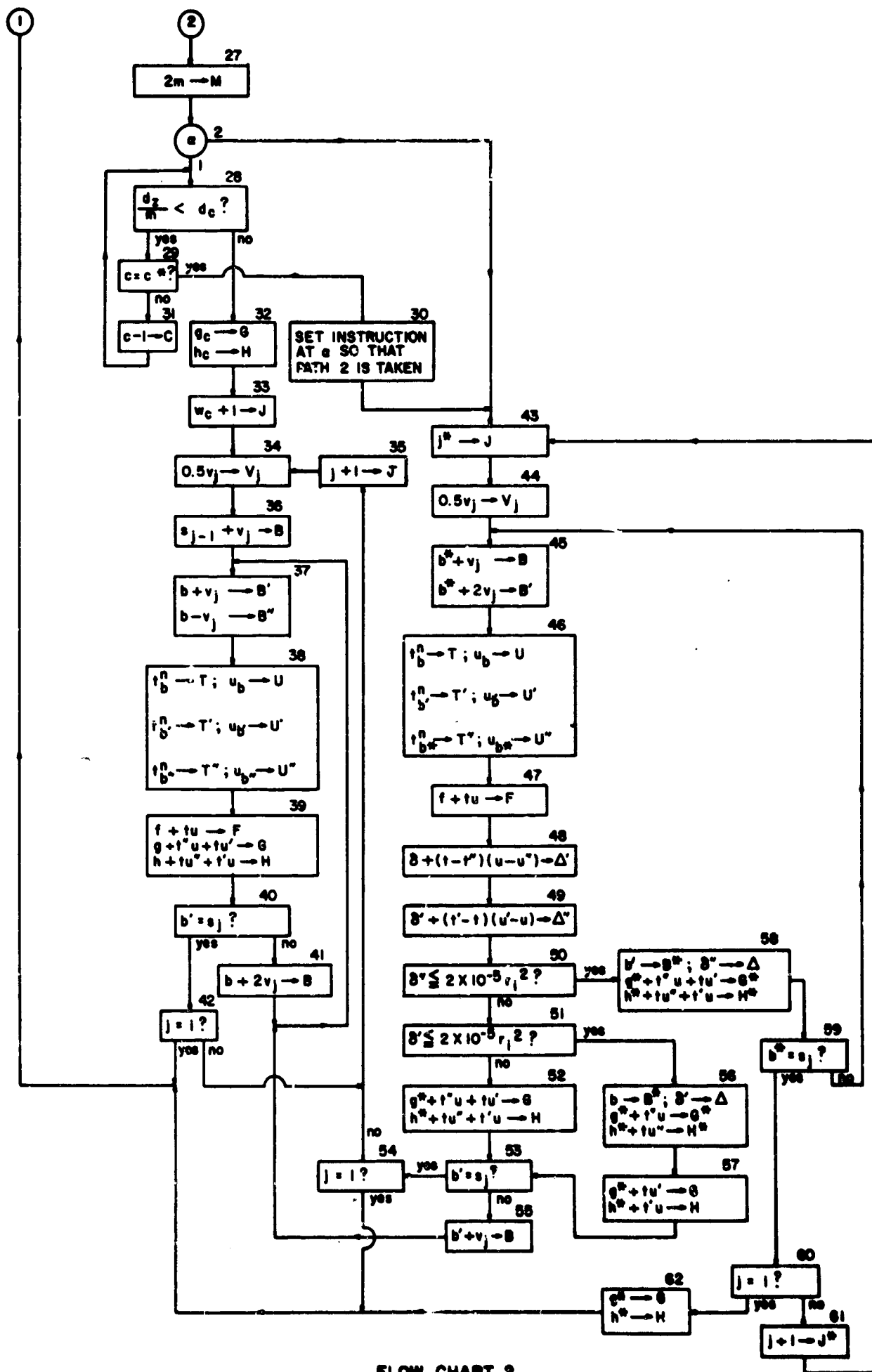
FLOW CHART 1  
E AS A FUNCTION OF  $\bar{R}, \bar{a}, \sigma, n$





FLOW CHART 2  
E AS A FUNCTION OF  $R_i, a, n$





FLOW CHART 2  
E AS A FUNCTION OF  $R_1, a, n$



The values of the circular coverage function are preserved in the  $T_1$  locations in the manner which has been indicated, as the number  $m$  of subintervals is successively increased, in order to save machine computing time, so far as machine storage permits. The circular coverage function subroutine is very time-consuming, relative to simple operations such as multiplications and divisions and even relative to simpler subroutines such as those for logarithms and exponentials. It requires an average time of about 1.6 milliseconds on the IBM 7030 (STRETCH) computer for six decimal digit accuracy, and 2.5 milliseconds for nine digits.

It was shown in Section 2 that  $(l - k)/2$ , the maximum possible error committed in taking  $(l + k)/2$  as an approximation for the true value of  $E$ , does not exceed  $1/m$ . The values of  $m$  are always of the form  $2^j$ , since  $m$  is increased by successive doubling. If we wish to guarantee that  $(l - k)/2$  does not exceed 0.0005, i.e., we wish to compute  $E$  with three decimal digit accuracy,  $m$  may have to become as large as 2048 ( $= 2^{11}$ ). If we wish to guarantee that  $(l - k)/2$  does not exceed 0.00005,  $m$  may have to become as large as 32,768, as this is the smallest power of 2 which satisfies  $0.00005 \leq 1/m$ . This makes heavy demands on storage, but is possible on many present-day computers. If still greater accuracy is desired, the program can be modified so that values of the circular coverage function are not preserved, but are recomputed whenever required. In this case the attainable accuracy is unlimited and the storage requirements are light, but one pays a heavy price in computing time.

In computing the tables (Apps. A, B) in the present report, with all values of  $a$  and  $R$  specified in advance, a different and far more efficient scheme was used, whereby, for any given value of  $a$ , the corresponding values of  $\log[1 - P(a, r)]$  are precomputed and stored, not only for all of the 57 specified values of  $R$  but also for all subdivision points which may be needed, making a total of 14785 values of  $\log[1 - P(a, r)]$  for each value of  $a$ . Then when the value of  $Q(r)$  or  $[1 - P(a, r)]^n$  is needed for some value of  $n$ , it is obtained by computing  $\exp\{n \log[1 - P(a, r)]\}$ . Also, for each  $a$ , the corresponding 14785 values of  $r^2$  are precomputed and stored. The values of  $\log[1 - P(a, r)]$  are stored in locations  $T_1, T_2, \dots, T_{14785}$ , and the values of  $r^2$  in locations  $U_1, U_2, \dots, U_{14785}$ . This program is shown in Flow Chart 2.

We do not give a complete explanation of Flow Chart 2, which would involve a very large number of details, but we give on pages 26-27 the values of  $r_k, n_k, s_k$  and  $z_k$  ( $k = 1, 2, \dots, 58$ ),



and  $d_k$  and  $w_k$  ( $k = 1, 2, 3, 4$ ), all of which are stored in the program. The values of  $r_k$  are simply the specified values of the target radius  $R$ , with  $r_1 = 0$  to avoid zero subscripts as required by FORTRAN. The values of  $n_k$  are the maximum number of subintervals which may be required in the interval  $[r_{k-1}, r_k]$ . For example, the interval  $[0.40, 0.50]$  may have to be divided into 512 subintervals, but not more, at some stage of computing the direct and inverse tables. We do not go into detail here on the  $s_k$ ,  $z_k$ ,  $d_k$  and  $w_k$  columns.

The average time on the IBM 7030 (STRETCH) computer for computing  $E$  as a function of  $a$ ,  $R$  and  $n$ , using the method of Flow Chart 2, with precomputed and stored values of  $\log[1 - P(a, r)]$ , was of the order of 60 milliseconds for a tolerance  $y$  of 0.01, in computing the tables for the present report. For a tolerance of 0.001, it was of the order of 250 milliseconds or one-fourth of a second. With the program of Flow Chart 1, in which the values of  $\log[1 - P(a, r)]$  are not precomputed, the time is 250 to 500 milliseconds for a tolerance of 0.01.



$\underline{k}$	$\underline{r_k}$	$\underline{n_k}$	$\underline{s_k}$	$\underline{z_k}$	$\underline{d_k}$	$\underline{w_k}$
1	0	0	1	1	0	1
2	.05	2048	2049	2	.05	3
3	.10	1024	3073	2	.10	42
4	.20	1024	4097	3	.50	58
5	.30	1024	5121	3		
6	.40	512	5633	3		
7	.50	512	6145	3		
8	.60	512	6657	3		
9	.70	512	7169	3		
10	.80	256	7425	3		
11	.90	256	7681	3		
12	1.00	256	7937	3		
13	1.10	256	8193	3		
14	1.20	256	8449	3		
15	1.30	256	8705	3		
16	1.40	256	8961	3		
17	1.50	256	9217	3		
18	1.60	128	9345	3		
19	1.70	128	9473	3		
20	1.80	128	9601	3		



<u>k</u>	<u>r<sub>k</sub></u>	<u>n<sub>k</sub></u>	<u>s<sub>k</sub></u>	<u>z<sub>k</sub></u>	<u>k</u>	<u>r<sub>k</sub></u>	<u>n<sub>k</sub></u>	<u>s<sub>k</sub></u>	<u>z<sub>k</sub></u>
21	1.90	128	9729	3	41	3.90	64	11777	3
22	2.00	128	9857	3	42	4.00	64	11841	3
23	2.10	128	9985	3	43	4.50	256	12097	4
24	2.20	128	10113	3	44	5.00	256	12353	4
25	2.30	128	10241	3	45	5.50	256	12609	4
26	2.40	128	10369	3	46	6.00	256	12865	4
27	2.50	128	10497	3	47	6.50	256	13121	4
28	2.60	128	10625	3	48	7.00	256	13377	4
29	2.70	128	10753	3	49	7.50	256	13633	4
30	2.80	128	10881	3	50	8.00	128	13761	4
31	2.90	128	11009	3	51	8.50	128	13889	4
32	3.00	128	11137	3	52	9.00	128	14017	4
33	3.10	128	11265	3	53	9.50	128	14145	4
34	3.20	64	11329	3	54	10.00	128	14273	4
35	3.30	64	11393	3	55	10.50	128	14401	4
36	3.40	64	11457	3	56	11.00	128	14529	4
37	3.50	64	11521	3	57	11.50	128	14657	4
38	3.60	64	11585	3	58	12.00	128	14785	4
39	3.70	64	11649	3					
40	3.80	64	11713	3					



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## **APPENDIX A**



DIRECT TABLE

See a general description of the direct table in Section 4. The following example illustrates its use. If the unnormalized lethal radius  $\bar{a}$  is 40 yards, target radius  $\bar{R}$  is 20 yards, and standard deviation  $\sigma$  is 50 yards, find the expected proportional coverage  $E$  and expected damaged area for  $n = 6$ . Here  $a = \bar{a}/\sigma = 0.8$ ,  $R = \bar{R}/\sigma = 0.4$ ,  $n = 6$ . From page 45 of the tables it is found that  $E = 0.842$ . The expected damaged area is  $0.842 \cdot (\pi \bar{R}^2) = 0.842 \times 400\pi \text{ sq. yd.} = 1058 \text{ sq. yd.}$  approximately.



(R AND A EXPRESSED IN SIGMAS)

Na I

[illegible]



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N = 1

A/R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
0.080	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
0.090	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.140	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
0.160	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.180	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002
0.200	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.250	0.014	0.013	0.013	0.012	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.005
0.300	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007
0.350	0.028	0.026	0.025	0.023	0.021	0.020	0.019	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.009	0.009
0.400	0.037	0.034	0.032	0.030	0.028	0.026	0.024	0.023	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012
0.450	0.046	0.043	0.040	0.038	0.035	0.033	0.031	0.029	0.027	0.025	0.024	0.022	0.021	0.020	0.019	0.017	0.017	0.016	0.015
0.500	0.057	0.053	0.050	0.046	0.043	0.041	0.038	0.035	0.033	0.031	0.029	0.027	0.026	0.024	0.023	0.022	0.020	0.019	0.018
0.550	0.068	0.064	0.060	0.056	0.052	0.049	0.046	0.043	0.040	0.038	0.035	0.033	0.031	0.029	0.028	0.026	0.025	0.023	0.022
0.600	0.081	0.076	0.071	0.066	0.062	0.058	0.054	0.051	0.048	0.045	0.042	0.039	0.037	0.035	0.033	0.031	0.029	0.028	0.026
0.650	0.094	0.088	0.083	0.078	0.073	0.068	0.064	0.060	0.056	0.053	0.049	0.046	0.043	0.041	0.039	0.036	0.034	0.033	0.031
0.700	0.109	0.102	0.096	0.090	0.084	0.079	0.074	0.069	0.065	0.061	0.057	0.054	0.050	0.047	0.045	0.042	0.040	0.038	0.036
0.750	0.124	0.116	0.109	0.102	0.096	0.090	0.084	0.079	0.074	0.070	0.065	0.061	0.058	0.054	0.051	0.048	0.046	0.043	0.041
0.800	0.140	0.131	0.123	0.116	0.109	0.102	0.096	0.090	0.084	0.079	0.074	0.070	0.066	0.062	0.058	0.055	0.052	0.049	0.047
0.850	0.157	0.147	0.139	0.130	0.122	0.115	0.108	0.101	0.095	0.089	0.084	0.079	0.074	0.070	0.066	0.062	0.059	0.056	0.053
0.900	0.174	0.164	0.154	0.145	0.136	0.128	0.120	0.113	0.106	0.099	0.094	0.088	0.083	0.078	0.074	0.070	0.066	0.062	0.059
0.950	0.192	0.181	0.171	0.161	0.151	0.142	0.133	0.125	0.118	0.111	0.104	0.098	0.092	0.087	0.082	0.078	0.073	0.069	0.066
1.000	0.211	0.199	0.188	0.177	0.166	0.156	0.147	0.138	0.130	0.122	0.115	0.108	0.102	0.096	0.091	0.086	0.081	0.077	0.073
1.100	0.251	0.237	0.224	0.211	0.199	0.187	0.176	0.166	0.156	0.147	0.138	0.130	0.123	0.116	0.110	0.104	0.098	0.093	0.088
1.200	0.292	0.277	0.262	0.247	0.233	0.220	0.208	0.196	0.184	0.174	0.164	0.155	0.146	0.138	0.130	0.123	0.116	0.110	0.105
1.300	0.335	0.318	0.301	0.285	0.270	0.255	0.241	0.227	0.215	0.202	0.191	0.180	0.170	0.161	0.152	0.144	0.136	0.129	0.123
1.400	0.378	0.360	0.342	0.325	0.308	0.291	0.276	0.261	0.246	0.233	0.220	0.208	0.197	0.186	0.176	0.167	0.158	0.150	0.142
1.500	0.423	0.403	0.384	0.365	0.347	0.329	0.312	0.295	0.280	0.265	0.251	0.237	0.224	0.212	0.201	0.191	0.181	0.171	0.163
1.600	0.467	0.446	0.426	0.406	0.387	0.368	0.349	0.332	0.314	0.298	0.282	0.268	0.254	0.240	0.228	0.216	0.205	0.195	0.185
1.700	0.511	0.490	0.469	0.448	0.427	0.407	0.387	0.369	0.350	0.333	0.316	0.299	0.284	0.270	0.256	0.243	0.231	0.219	0.208
1.800	0.554	0.532	0.511	0.489	0.468	0.447	0.426	0.406	0.387	0.368	0.350	0.332	0.316	0.300	0.285	0.271	0.257	0.245	0.233
1.900	0.596	0.574	0.552	0.530	0.508	0.487	0.465	0.444	0.424	0.404	0.385	0.366	0.349	0.332	0.315	0.300	0.285	0.271	0.258
2.000	0.636	0.614	0.592	0.570	0.548	0.526	0.504	0.483	0.461	0.441	0.420	0.401	0.382	0.364	0.347	0.330	0.314	0.299	0.285
2.200	0.711	0.690	0.669	0.647	0.625	0.603	0.581	0.558	0.536	0.514	0.493	0.472	0.451	0.431	0.412	0.393	0.375	0.358	0.342
2.400	0.776	0.757	0.738	0.717	0.697	0.675	0.653	0.631	0.609	0.587	0.564	0.542	0.521	0.499	0.479	0.458	0.439	0.420	0.402
2.600	0.832	0.815	0.796	0.780	0.761	0.741	0.720	0.699	0.677	0.656	0.634	0.611	0.589	0.568	0.546	0.525	0.504	0.483	0.464
2.800	0.877	0.864	0.849	0.833	0.816	0.798	0.780	0.760	0.740	0.720	0.699	0.677	0.655	0.634	0.612	0.590	0.569	0.547	0.527
3.000	0.913	0.902	0.890	0.877	0.863	0.847	0.831	0.814	0.796	0.777	0.758	0.738	0.717	0.696	0.675	0.654	0.632	0.611	0.589
3.200	0.941	0.932	0.922	0.912	0.900	0.888	0.874	0.860	0.844	0.828	0.810	0.792	0.773	0.754	0.734	0.713	0.692	0.671	0.650
3.400	0.960	0.954	0.947	0.939	0.930	0.920	0.909	0.897	0.884	0.870	0.855	0.839	0.823	0.805	0.787	0.768	0.748	0.728	0.708
3.600	0.975	0.970	0.965	0.959	0.952	0.944	0.936	0.927	0.916	0.905	0.892	0.879	0.865	0.850	0.834	0.817	0.799	0.781	0.762
3.800	0.984	0.981	0.977	0.973	0.968	0.963	0.956	0.949	0.941	0.932	0.922	0.912	0.900	0.887	0.873	0.859	0.843	0.827	0.810
4.000	0.990	0.988	0.986	0.983	0.980	0.976	0.971	0.966	0.960	0.953	0.946	0.937	0.928	0.917	0.906	0.894	0.881	0.867	0.852
4.500	0.998	0.997	0.996	0.995	0.994	0.993	0.991	0.989	0.987	0.984	0.980	0.977	0.972	0.967	0.961	0.954	0.947	0.938	0.929
5.000	1.000	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.995	0.994	0.993	0.991	0.989	0.987	0.984	0.980	0.976	0.972
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N = 1

R/A	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.090	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.120	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.140	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.160	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.180	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.200	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
0.300	0.006	0.006	0.006	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.350	0.008	0.008	0.008	0.006	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.400	0.011	0.011	0.010	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.450	0.014	0.013	0.013	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001
0.500	0.017	0.016	0.016	0.012	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.550	0.021	0.020	0.019	0.015	0.012	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002
0.600	0.025	0.024	0.023	0.018	0.014	0.012	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.650	0.029	0.028	0.026	0.021	0.017	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003
0.700	0.034	0.032	0.031	0.024	0.020	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003
0.750	0.039	0.037	0.035	0.028	0.023	0.019	0.016	0.013	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004
0.800	0.044	0.042	0.040	0.032	0.026	0.021	0.018	0.015	0.013	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004
0.850	0.050	0.047	0.045	0.036	0.029	0.024	0.020	0.017	0.015	0.013	0.011	0.010	0.009	0.008	0.007	0.007	0.006	0.005	0.005
0.900	0.056	0.053	0.051	0.040	0.032	0.027	0.023	0.019	0.017	0.014	0.013	0.011	0.010	0.009	0.008	0.007	0.007	0.006	0.006
0.950	0.062	0.059	0.056	0.045	0.036	0.030	0.025	0.021	0.018	0.016	0.014	0.013	0.011	0.010	0.009	0.008	0.007	0.007	0.006
1.000	0.069	0.066	0.062	0.049	0.040	0.033	0.028	0.024	0.020	0.018	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.008	0.007
1.100	0.084	0.079	0.076	0.060	0.048	0.040	0.034	0.029	0.025	0.022	0.019	0.017	0.015	0.013	0.012	0.011	0.010	0.009	0.008
1.200	0.099	0.095	0.090	0.071	0.058	0.048	0.040	0.034	0.029	0.026	0.023	0.020	0.018	0.016	0.014	0.013	0.012	0.011	0.010
1.300	0.116	0.111	0.105	0.084	0.068	0.056	0.047	0.040	0.035	0.030	0.026	0.023	0.021	0.019	0.017	0.015	0.014	0.013	0.012
1.400	0.135	0.128	0.122	0.097	0.079	0.065	0.055	0.046	0.040	0.035	0.031	0.027	0.024	0.022	0.020	0.018	0.016	0.015	0.014
1.500	0.155	0.147	0.140	0.111	0.090	0.075	0.063	0.053	0.046	0.040	0.035	0.031	0.028	0.025	0.023	0.020	0.019	0.017	0.016
1.600	0.176	0.167	0.159	0.126	0.102	0.085	0.071	0.061	0.052	0.046	0.040	0.036	0.032	0.028	0.026	0.023	0.021	0.019	0.018
1.700	0.198	0.188	0.180	0.143	0.116	0.096	0.080	0.069	0.059	0.051	0.045	0.040	0.036	0.032	0.029	0.026	0.024	0.022	0.020
1.800	0.221	0.211	0.201	0.160	0.130	0.107	0.090	0.077	0.066	0.058	0.051	0.045	0.040	0.036	0.032	0.029	0.027	0.025	0.023
1.900	0.246	0.234	0.224	0.178	0.144	0.119	0.101	0.086	0.074	0.064	0.057	0.050	0.045	0.040	0.036	0.033	0.030	0.027	0.025
2.000	0.272	0.259	0.247	0.197	0.160	0.132	0.111	0.095	0.082	0.071	0.063	0.055	0.050	0.044	0.040	0.036	0.033	0.030	0.028
2.200	0.326	0.311	0.297	0.238	0.193	0.160	0.134	0.115	0.099	0.086	0.076	0.067	0.060	0.054	0.049	0.044	0.040	0.037	0.034
2.400	0.384	0.367	0.351	0.282	0.230	0.190	0.160	0.136	0.118	0.103	0.090	0.080	0.071	0.064	0.058	0.052	0.048	0.044	0.040
2.600	0.444	0.426	0.408	0.330	0.270	0.223	0.188	0.160	0.138	0.120	0.106	0.094	0.084	0.075	0.068	0.062	0.056	0.051	0.047
2.800	0.506	0.486	0.467	0.381	0.312	0.259	0.218	0.186	0.160	0.139	0.123	0.109	0.097	0.087	0.079	0.071	0.065	0.060	0.055
3.000	0.568	0.547	0.527	0.434	0.357	0.297	0.250	0.213	0.184	0.160	0.141	0.125	0.111	0.100	0.090	0.082	0.075	0.068	0.063
3.200	0.629	0.608	0.587	0.489	0.405	0.338	0.284	0.242	0.209	0.182	0.160	0.142	0.126	0.114	0.103	0.093	0.085	0.078	0.072
3.400	0.687	0.667	0.646	0.545	0.455	0.380	0.321	0.274	0.236	0.206	0.181	0.160	0.143	0.128	0.116	0.105	0.096	0.088	0.080
3.600	0.742	0.722	0.702	0.601	0.506	0.425	0.359	0.307	0.264	0.230	0.203	0.179	0.160	0.144	0.130	0.118	0.107	0.098	0.090
3.800	0.792	0.773	0.754	0.655	0.558	0.472	0.400	0.342	0.295	0.257	0.226	0.200	0.178	0.160	0.144	0.131	0.119	0.109	0.100
4.000	0.836	0.819	0.802	0.708	0.611	0.520	0.442	0.378	0.326	0.284	0.250	0.221	0.198	0.177	0.160	0.145	0.132	0.121	0.111
4.500	0.919	0.908	0.894	0.824	0.736	0.642	0.554	0.477	0.413	0.360	0.316	0.280	0.250	0.224	0.203	0.184	0.167	0.153	0.141
5.000	0.967	0.961	0.954	0.908	0.841	0.758	0.669	0.584	0.508	0.444	0.391	0.346	0.309	0.277	0.250	0.227	0.207	0.189	0.174
5.500	0.989	0.986	0.983	0.959	0.918	0.856	0.778	0.693	0.610	0.536	0.472	0.419	0.373	0.335	0.303				



**N= 2**

33



**(K AND A EXPRESSED IN SIGMAS)**

**N= 2**



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N = 2

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.080	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.090	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.120	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.140	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.160	0.004	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.180	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.200	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.250	0.009	0.008	0.008	0.006	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.300	0.012	0.012	0.011	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.350	0.017	0.016	0.015	0.012	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
0.400	0.022	0.021	0.020	0.016	0.013	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002
0.450	0.027	0.026	0.025	0.020	0.016	0.013	0.011	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003
0.500	0.034	0.032	0.030	0.024	0.019	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.004	0.003
0.550	0.040	0.038	0.037	0.029	0.023	0.019	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004
0.600	0.048	0.045	0.043	0.034	0.028	0.023	0.019	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005
0.650	0.056	0.053	0.050	0.040	0.032	0.027	0.022	0.019	0.016	0.014	0.013	0.011	0.010	0.009	0.008	0.007	0.007	0.006	0.006
0.700	0.064	0.061	0.058	0.046	0.037	0.031	0.026	0.022	0.019	0.017	0.015	0.013	0.011	0.010	0.009	0.008	0.008	0.007	0.006
0.750	0.073	0.069	0.066	0.052	0.042	0.035	0.029	0.025	0.022	0.019	0.017	0.015	0.013	0.012	0.011	0.010	0.009	0.008	0.007
0.800	0.082	0.078	0.075	0.059	0.048	0.039	0.033	0.028	0.024	0.021	0.019	0.017	0.015	0.013	0.012	0.011	0.010	0.009	0.008
0.850	0.092	0.088	0.083	0.066	0.053	0.044	0.037	0.032	0.027	0.024	0.021	0.019	0.017	0.015	0.013	0.012	0.011	0.010	0.009
0.900	0.103	0.097	0.093	0.073	0.059	0.049	0.041	0.035	0.030	0.026	0.023	0.021	0.018	0.016	0.015	0.013	0.012	0.011	0.010
0.950	0.113	0.108	0.102	0.081	0.066	0.054	0.046	0.039	0.034	0.029	0.026	0.023	0.020	0.018	0.016	0.015	0.014	0.012	0.011
1.000	0.124	0.118	0.112	0.089	0.072	0.060	0.050	0.043	0.037	0.032	0.028	0.025	0.022	0.020	0.018	0.016	0.015	0.014	0.013
1.100	0.148	0.140	0.134	0.106	0.086	0.071	0.060	0.051	0.044	0.038	0.034	0.030	0.026	0.024	0.021	0.019	0.018	0.016	0.015
1.200	0.173	0.164	0.156	0.124	0.100	0.083	0.070	0.059	0.051	0.045	0.039	0.035	0.031	0.028	0.025	0.023	0.021	0.019	0.017
1.300	0.199	0.189	0.180	0.142	0.115	0.096	0.080	0.068	0.059	0.051	0.045	0.040	0.036	0.032	0.029	0.026	0.024	0.022	0.020
1.400	0.226	0.215	0.205	0.162	0.132	0.109	0.092	0.078	0.067	0.059	0.051	0.046	0.041	0.037	0.033	0.030	0.027	0.025	0.023
1.500	0.255	0.242	0.231	0.183	0.148	0.123	0.103	0.088	0.076	0.066	0.058	0.051	0.046	0.041	0.037	0.034	0.031	0.028	0.026
1.600	0.284	0.271	0.258	0.205	0.166	0.137	0.115	0.098	0.085	0.074	0.065	0.057	0.051	0.046	0.042	0.038	0.034	0.031	0.029
1.700	0.315	0.300	0.286	0.227	0.184	0.152	0.128	0.109	0.094	0.082	0.072	0.064	0.057	0.051	0.046	0.042	0.038	0.035	0.032
1.800	0.346	0.330	0.315	0.251	0.203	0.168	0.141	0.120	0.104	0.091	0.080	0.071	0.063	0.056	0.051	0.046	0.042	0.039	0.035
1.900	0.379	0.361	0.345	0.275	0.223	0.185	0.155	0.132	0.114	0.099	0.087	0.077	0.069	0.062	0.056	0.051	0.046	0.042	0.039
2.000	0.412	0.393	0.375	0.300	0.244	0.201	0.169	0.144	0.124	0.108	0.096	0.085	0.075	0.068	0.061	0.055	0.051	0.046	0.042
2.200	0.479	0.459	0.439	0.352	0.287	0.237	0.199	0.170	0.147	0.128	0.112	0.100	0.089	0.080	0.072	0.065	0.060	0.054	0.050
2.400	0.548	0.526	0.504	0.408	0.333	0.276	0.232	0.197	0.170	0.148	0.130	0.116	0.103	0.093	0.084	0.076	0.069	0.063	0.058
2.600	0.617	0.593	0.570	0.466	0.382	0.316	0.266	0.227	0.195	0.170	0.150	0.133	0.118	0.106	0.096	0.087	0.080	0.073	0.067
2.800	0.683	0.659	0.636	0.525	0.433	0.360	0.303	0.258	0.222	0.194	0.170	0.151	0.135	0.121	0.109	0.099	0.090	0.083	0.076
3.000	0.746	0.723	0.700	0.586	0.486	0.405	0.341	0.291	0.251	0.216	0.192	0.170	0.152	0.136	0.123	0.112	0.102	0.093	0.085
3.200	0.802	0.781	0.759	0.647	0.541	0.453	0.382	0.326	0.281	0.245	0.215	0.190	0.170	0.153	0.138	0.125	0.114	0.104	0.096
3.400	0.852	0.833	0.813	0.705	0.598	0.503	0.425	0.362	0.312	0.272	0.239	0.212	0.189	0.170	0.153	0.139	0.127	0.116	0.107
3.600	0.893	0.877	0.860	0.761	0.654	0.554	0.469	0.401	0.346	0.301	0.265	0.234	0.209	0.188	0.169	0.154	0.140	0.128	0.118
3.800	0.926	0.914	0.899	0.812	0.708	0.606	0.516	0.441	0.381	0.332	0.291	0.258	0.230	0.207	0.187	0.169	0.154	0.141	0.130
4.000	0.952	0.942	0.931	0.857	0.761	0.658	0.563	0.483	0.417	0.363	0.319	0.283	0.252	0.227	0.204	0.185	0.169	0.155	0.142
4.500	0.986	0.983	0.978	0.940	0.873	0.783	0.685	0.594	0.515	0.449	0.395	0.350	0.312	0.280	0.253	0.229	0.209	0.191	0.175
5.000	0.997	0.996	0.995	0.981	0.946	0.885	0.801	0.708	0.620	0.543	0.478	0.423	0.378	0.339	0.306	0.277	0.253	0.231	0.212
5.500	1.000	0.999	0.999	0.995	0.983	0.952	0.895	0.817	0.728	0.643	0.568	0.504	0.449	0.403	0.364</				



## (R AND A EXPRESSED IN SIGMAS)

**N= 3**

A \ B	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.040	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001
0.045	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.050	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.060	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003
0.070	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004
0.080	0.010	0.010	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005
0.090	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006
0.100	0.015	0.015	0.015	0.015	0.014	0.014	0.014	0.013	0.013	0.012	0.012	0.011	0.011	0.010	0.010	0.009	0.008	0.008	0.007
0.120	0.021	0.021	0.021	0.021	0.021	0.020	0.020	0.019	0.018	0.018	0.017	0.016	0.015	0.014	0.014	0.013	0.012	0.011	0.011
0.140	0.029	0.029	0.029	0.028	0.028	0.027	0.027	0.026	0.025	0.024	0.023	0.022	0.021	0.020	0.019	0.018	0.016	0.015	0.014
0.160	0.038	0.038	0.037	0.037	0.036	0.035	0.035	0.033	0.032	0.031	0.030	0.028	0.027	0.026	0.024	0.023	0.021	0.020	0.019
0.180	0.047	0.047	0.047	0.046	0.046	0.045	0.044	0.042	0.041	0.039	0.038	0.036	0.034	0.032	0.031	0.029	0.027	0.025	0.024
0.200	0.058	0.058	0.058	0.057	0.056	0.055	0.053	0.052	0.050	0.048	0.046	0.044	0.042	0.040	0.038	0.035	0.033	0.031	0.029
0.250	0.089	0.089	0.089	0.088	0.086	0.084	0.082	0.080	0.077	0.074	0.071	0.068	0.065	0.061	0.058	0.055	0.051	0.048	0.045
0.300	0.126	0.126	0.125	0.124	0.122	0.119	0.116	0.113	0.109	0.105	0.101	0.096	0.092	0.087	0.082	0.078	0.073	0.069	0.065
0.350	0.168	0.167	0.166	0.164	0.162	0.159	0.155	0.150	0.146	0.140	0.135	0.129	0.123	0.117	0.110	0.104	0.098	0.092	0.087
0.400	0.213	0.213	0.211	0.209	0.206	0.202	0.197	0.192	0.186	0.179	0.172	0.165	0.157	0.149	0.142	0.134	0.126	0.119	0.112
0.450	0.262	0.261	0.260	0.257	0.253	0.248	0.243	0.236	0.229	0.221	0.212	0.204	0.194	0.185	0.176	0.166	0.157	0.148	0.139
0.500	0.313	0.312	0.310	0.307	0.303	0.297	0.290	0.283	0.274	0.265	0.255	0.245	0.234	0.223	0.212	0.201	0.190	0.179	0.168
0.550	0.365	0.364	0.362	0.358	0.353	0.347	0.340	0.331	0.322	0.311	0.300	0.288	0.276	0.263	0.250	0.238	0.225	0.212	0.200
0.600	0.417	0.416	0.414	0.410	0.405	0.398	0.390	0.380	0.370	0.358	0.346	0.333	0.319	0.305	0.290	0.276	0.261	0.247	0.233
0.650	0.469	0.467	0.466	0.462	0.456	0.449	0.440	0.430	0.418	0.406	0.392	0.378	0.363	0.347	0.331	0.315	0.299	0.283	0.267
0.700	0.520	0.520	0.517	0.513	0.507	0.499	0.490	0.479	0.467	0.453	0.439	0.423	0.407	0.390	0.372	0.355	0.337	0.319	0.302
0.750	0.570	0.569	0.566	0.562	0.556	0.548	0.538	0.527	0.514	0.500	0.484	0.468	0.451	0.433	0.414	0.395	0.376	0.357	0.338
0.800	0.617	0.616	0.613	0.609	0.602	0.594	0.584	0.573	0.560	0.545	0.529	0.512	0.494	0.475	0.455	0.435	0.415	0.394	0.374
0.850	0.661	0.661	0.658	0.653	0.647	0.639	0.629	0.617	0.604	0.589	0.573	0.555	0.536	0.517	0.496	0.475	0.454	0.432	0.410
0.900	0.703	0.702	0.700	0.695	0.689	0.681	0.671	0.659	0.646	0.631	0.615	0.597	0.578	0.557	0.536	0.514	0.492	0.469	0.446
0.950	0.742	0.741	0.738	0.734	0.728	0.720	0.710	0.699	0.686	0.671	0.654	0.636	0.617	0.596	0.575	0.552	0.529	0.506	0.482
1.000	0.777	0.776	0.774	0.769	0.763	0.756	0.746	0.735	0.722	0.708	0.692	0.674	0.654	0.634	0.612	0.589	0.566	0.542	0.517
1.100	0.837	0.836	0.834	0.830	0.825	0.818	0.810	0.800	0.788	0.774	0.759	0.742	0.723	0.703	0.682	0.659	0.635	0.610	0.585
1.200	0.885	0.884	0.882	0.879	0.874	0.869	0.861	0.852	0.842	0.830	0.816	0.800	0.783	0.764	0.743	0.721	0.698	0.673	0.648
1.300	0.921	0.920	0.919	0.916	0.912	0.908	0.901	0.894	0.885	0.875	0.863	0.849	0.833	0.816	0.797	0.776	0.754	0.731	0.706
1.400	0.947	0.947	0.946	0.944	0.941	0.937	0.932	0.926	0.919	0.910	0.900	0.888	0.875	0.859	0.842	0.824	0.803	0.781	0.758
1.500	0.966	0.965	0.965	0.963	0.961	0.958	0.954	0.950	0.944	0.937	0.929	0.919	0.908	0.895	0.880	0.863	0.845	0.825	0.804
1.600	0.978	0.978	0.978	0.977	0.975	0.973	0.970	0.967	0.962	0.957	0.950	0.943	0.933	0.923	0.910	0.896	0.880	0.863	0.843
1.700	0.987	0.987	0.986	0.986	0.984	0.983	0.981	0.978	0.975	0.971	0.966	0.960	0.953	0.944	0.934	0.923	0.909	0.894	0.877
1.800	0.992	0.992	0.992	0.991	0.991	0.990	0.988	0.986	0.984	0.981	0.978	0.973	0.967	0.961	0.953	0.943	0.932	0.919	0.905
1.900	0.996	0.995	0.995	0.99	0.994	0.994	0.993	0.992	0.990	0.988	0.985	0.982	0.978	0.973	0.967	0.959	0.950	0.940	0.928
2.000	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.995	0.994	0.993	0.991	0.988	0.985	0.982	0.977	0.971	0.964	0.956	0.946
2.200	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.997	0.995	0.994	0.992	0.990	0.987	0.983	0.978	0.972
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.998	0.997	0.996	0.994	0.992	0.990	0.986
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.997
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1			



N = 3

37



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N = 3

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.080	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.090	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.120	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
0.140	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.160	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.180	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.200	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.250	0.013	0.012	0.012	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.300	0.018	0.017	0.017	0.013	0.011	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.350	0.025	0.023	0.022	0.018	0.014	0.012	0.010	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002
0.400	0.032	0.030	0.029	0.023	0.019	0.015	0.013	0.011	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003
0.450	0.040	0.038	0.036	0.029	0.023	0.019	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004
0.500	0.049	0.047	0.044	0.035	0.028	0.023	0.020	0.017	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005
0.550	0.059	0.056	0.053	0.042	0.034	0.028	0.024	0.020	0.017	0.015	0.013	0.012	0.010	0.009	0.008	0.008	0.007	0.006	0.006
0.600	0.069	0.065	0.062	0.049	0.040	0.033	0.028	0.024	0.020	0.018	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.008	0.007
0.650	0.080	0.076	0.072	0.057	0.046	0.038	0.032	0.027	0.024	0.021	0.018	0.016	0.014	0.013	0.012	0.010	0.010	0.009	0.008
0.700	0.091	0.087	0.082	0.065	0.053	0.044	0.037	0.031	0.027	0.023	0.021	0.018	0.016	0.015	0.013	0.012	0.011	0.010	0.009
0.750	0.103	0.098	0.093	0.074	0.060	0.049	0.041	0.035	0.030	0.027	0.023	0.021	0.018	0.017	0.015	0.014	0.012	0.011	0.010
0.800	0.116	0.110	0.104	0.083	0.067	0.055	0.047	0.040	0.034	0.030	0.026	0.023	0.021	0.019	0.017	0.015	0.014	0.013	0.012
0.850	0.129	0.122	0.116	0.092	0.074	0.062	0.052	0.044	0.038	0.033	0.029	0.026	0.023	0.021	0.019	0.017	0.015	0.014	0.013
0.900	0.142	0.135	0.128	0.101	0.082	0.069	0.057	0.049	0.042	0.037	0.032	0.028	0.025	0.023	0.021	0.019	0.017	0.016	0.014
0.950	0.156	0.148	0.141	0.111	0.090	0.075	0.063	0.053	0.046	0.040	0.035	0.031	0.028	0.025	0.023	0.020	0.019	0.017	0.016
1.000	0.170	0.161	0.153	0.121	0.098	0.081	0.068	0.058	0.050	0.044	0.038	0.034	0.030	0.027	0.025	0.022	0.020	0.019	0.017
1.100	0.199	0.189	0.180	0.142	0.115	0.095	0.080	0.068	0.059	0.051	0.045	0.040	0.036	0.032	0.029	0.026	0.024	0.022	0.020
1.200	0.229	0.218	0.207	0.164	0.133	0.110	0.092	0.079	0.068	0.059	0.052	0.046	0.041	0.037	0.033	0.030	0.027	0.025	0.023
1.300	0.260	0.247	0.235	0.187	0.151	0.125	0.105	0.090	0.077	0.067	0.059	0.052	0.047	0.042	0.038	0.034	0.031	0.029	0.026
1.400	0.292	0.278	0.265	0.210	0.170	0.141	0.118	0.101	0.087	0.076	0.067	0.059	0.053	0.047	0.043	0.039	0.035	0.032	0.030
1.500	0.325	0.309	0.295	0.234	0.190	0.157	0.132	0.112	0.097	0.084	0.074	0.066	0.059	0.053	0.048	0.043	0.039	0.036	0.033
1.600	0.359	0.342	0.326	0.259	0.210	0.173	0.146	0.124	0.107	0.093	0.082	0.073	0.065	0.058	0.053	0.048	0.043	0.040	0.037
1.700	0.393	0.375	0.357	0.284	0.231	0.191	0.160	0.137	0.118	0.103	0.090	0.080	0.071	0.064	0.058	0.052	0.048	0.044	0.040
1.800	0.428	0.408	0.390	0.311	0.252	0.209	0.175	0.149	0.129	0.112	0.099	0.088	0.078	0.070	0.063	0.057	0.052	0.048	0.044
1.900	0.464	0.443	0.423	0.338	0.274	0.227	0.191	0.162	0.140	0.122	0.108	0.095	0.085	0.076	0.069	0.062	0.057	0.052	0.048
2.000	0.500	0.477	0.456	0.366	0.297	0.246	0.207	0.176	0.152	0.132	0.116	0.103	0.092	0.083	0.075	0.068	0.062	0.056	0.052
2.200	0.572	0.548	0.525	0.423	0.345	0.286	0.240	0.205	0.176	0.154	0.135	0.120	0.107	0.096	0.087	0.079	0.072	0.066	0.060
2.400	0.643	0.619	0.594	0.484	0.396	0.328	0.275	0.235	0.202	0.176	0.155	0.137	0.123	0.110	0.099	0.090	0.082	0.075	0.069
2.600	0.712	0.687	0.663	0.546	0.449	0.372	0.313	0.267	0.230	0.200	0.176	0.156	0.139	0.125	0.113	0.102	0.093	0.086	0.079
2.800	0.776	0.752	0.728	0.609	0.504	0.419	0.353	0.301	0.259	0.226	0.198	0.176	0.157	0.141	0.127	0.115	0.105	0.096	0.088
3.000	0.833	0.811	0.789	0.671	0.561	0.466	0.395	0.336	0.290	0.253	0.222	0.197	0.175	0.158	0.142	0.129	0.118	0.108	0.099
3.200	0.881	0.863	0.843	0.732	0.619	0.519	0.438	0.374	0.322	0.281	0.247	0.219	0.195	0.175	0.158	0.143	0.131	0.120	0.110
3.400	0.920	0.905	0.888	0.789	0.677	0.572	0.484	0.413	0.356	0.311	0.273	0.242	0.216	0.194	0.175	0.158	0.144	0.132	0.121
3.600	0.949	0.934	0.925	0.840	0.733	0.626	0.532	0.454	0.392	0.342	0.300	0.266	0.237	0.213	0.192	0.174	0.159	0.145	0.133
3.800	0.970	0.962	0.952	0.884	0.786	0.679	0.581	0.497	0.429	0.374	0.329	0.291	0.260	0.233	0.210	0.191	0.174	0.159	0.146
4.000	0.983	0.978	0.972	0.920	0.835	0.732	0.630	0.542	0.468	0.408	0.358	0.318	0.283	0.254	0.229	0.208	0.190	0.174	0.159
4.500	0.997	0.996	0.994	0.976	0.929	0.851	0.755	0.657	0.571	0.498	0.438	0.388	0.346	0.311	0.280	0.254	0.232	0.212	0.195
5.000	1.000	1.000	0.999	0.994	0.979	0.937	0.865	0.774	0.681	0.597	0.526	0.466	0.415	0.373	0.337	0.305	0.278	0.254	0.234
5.500	1.000	1.000	1.000	0.999	0.995	0.981	0.943	0.876	0.790	0.701	0.620	0.550	0.491	0.441	0.398				



(R AND A EXPRESSED IN SIGMAS)

№ 4

A \ B	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001
0.040	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.045	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.050	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002
0.060	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.003
0.070	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005
0.080	0.013	0.013	0.013	0.012	0.012	0.012	0.012	0.011	0.011	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006
0.090	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008
0.100	0.020	0.020	0.020	0.019	0.019	0.019	0.018	0.018	0.017	0.016	0.016	0.015	0.014	0.013	0.013	0.012	0.011	0.011	0.010
0.120	0.028	0.028	0.028	0.028	0.027	0.027	0.026	0.025	0.024	0.023	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014
0.140	0.038	0.038	0.038	0.038	0.037	0.036	0.035	0.034	0.033	0.032	0.030	0.029	0.028	0.026	0.025	0.023	0.022	0.021	0.019
0.160	0.050	0.050	0.049	0.049	0.048	0.047	0.046	0.044	0.043	0.041	0.039	0.038	0.036	0.034	0.032	0.030	0.028	0.027	0.025
0.180	0.063	0.063	0.062	0.061	0.060	0.059	0.058	0.056	0.054	0.052	0.050	0.047	0.045	0.043	0.040	0.038	0.036	0.034	0.032
0.200	0.077	0.077	0.076	0.075	0.074	0.072	0.071	0.069	0.066	0.064	0.061	0.058	0.055	0.053	0.050	0.047	0.044	0.041	0.039
0.250	0.117	0.117	0.116	0.115	0.113	0.111	0.108	0.105	0.101	0.098	0.094	0.089	0.085	0.081	0.077	0.072	0.068	0.064	0.060
0.300	0.165	0.164	0.163	0.161	0.159	0.156	0.152	0.148	0.143	0.138	0.132	0.126	0.120	0.114	0.108	0.102	0.097	0.091	0.085
0.350	0.217	0.217	0.215	0.213	0.210	0.206	0.201	0.195	0.189	0.182	0.175	0.168	0.160	0.152	0.144	0.136	0.129	0.121	0.114
0.400	0.274	0.273	0.272	0.269	0.265	0.260	0.254	0.247	0.239	0.231	0.222	0.213	0.204	0.194	0.184	0.174	0.164	0.155	0.145
0.450	0.333	0.332	0.330	0.327	0.322	0.317	0.310	0.302	0.293	0.283	0.273	0.262	0.250	0.235	0.227	0.215	0.203	0.191	0.180
0.500	0.393	0.393	0.390	0.387	0.382	0.375	0.367	0.358	0.348	0.337	0.325	0.312	0.299	0.285	0.272	0.258	0.244	0.230	0.217
0.550	0.454	0.453	0.451	0.447	0.441	0.434	0.425	0.415	0.404	0.391	0.378	0.364	0.349	0.334	0.318	0.302	0.287	0.271	0.256
0.600	0.513	0.512	0.510	0.505	0.499	0.492	0.482	0.472	0.460	0.446	0.432	0.416	0.400	0.383	0.366	0.348	0.330	0.313	0.296
0.650	0.570	0.570	0.567	0.562	0.556	0.548	0.538	0.527	0.514	0.500	0.485	0.468	0.451	0.432	0.413	0.394	0.375	0.356	0.336
0.700	0.624	0.624	0.621	0.616	0.610	0.602	0.592	0.580	0.567	0.552	0.536	0.519	0.500	0.481	0.461	0.440	0.419	0.398	0.378
0.750	0.675	0.674	0.672	0.667	0.661	0.653	0.643	0.631	0.617	0.602	0.586	0.568	0.549	0.529	0.507	0.486	0.464	0.441	0.419
0.800	0.722	0.721	0.718	0.714	0.708	0.700	0.690	0.678	0.665	0.650	0.633	0.615	0.595	0.574	0.553	0.530	0.507	0.483	0.460
0.850	0.764	0.763	0.761	0.757	0.751	0.743	0.733	0.722	0.709	0.694	0.677	0.659	0.639	0.618	0.596	0.573	0.549	0.525	0.500
0.900	0.802	0.801	0.799	0.795	0.789	0.782	0.773	0.762	0.749	0.735	0.718	0.701	0.681	0.660	0.638	0.614	0.590	0.565	0.539
0.950	0.835	0.835	0.833	0.829	0.823	0.817	0.808	0.798	0.786	0.772	0.756	0.739	0.720	0.699	0.677	0.653	0.629	0.603	0.577
1.000	0.864	0.864	0.862	0.859	0.854	0.847	0.839	0.830	0.818	0.805	0.790	0.774	0.755	0.735	0.713	0.690	0.666	0.640	0.614
1.100	0.911	0.911	0.909	0.906	0.902	0.897	0.890	0.882	0.873	0.862	0.849	0.834	0.817	0.799	0.778	0.757	0.733	0.708	0.682
1.200	0.944	0.943	0.942	0.940	0.937	0.933	0.928	0.922	0.914	0.905	0.894	0.882	0.867	0.851	0.833	0.813	0.791	0.768	0.743
1.300	0.964	0.964	0.965	0.963	0.961	0.958	0.954	0.950	0.944	0.937	0.928	0.918	0.906	0.892	0.877	0.859	0.840	0.819	0.795
1.400	0.980	0.980	0.979	0.978	0.977	0.975	0.972	0.969	0.964	0.959	0.952	0.945	0.935	0.924	0.911	0.897	0.880	0.861	0.840
1.500	0.989	0.989	0.988	0.988	0.987	0.985	0.984	0.981	0.978	0.974	0.970	0.964	0.957	0.948	0.938	0.926	0.912	0.896	0.878
1.600	0.994	0.994	0.994	0.993	0.993	0.992	0.991	0.989	0.987	0.984	0.981	0.977	0.972	0.965	0.957	0.948	0.937	0.923	0.908
1.700	0.997	0.997	0.997	0.996	0.996	0.996	0.995	0.994	0.993	0.991	0.989	0.986	0.982	0.977	0.971	0.964	0.955	0.945	0.933
1.800	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.995	0.993	0.991	0.989	0.986	0.981	0.976	0.969	0.961	0.952
1.900	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.995	0.993	0.991	0.988	0.984	0.980	0.973	0.966
2.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.995	0.993	0.990	0.987	0.982	0.977
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.993
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.996
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				



## (LR AND A EXPRESSED IN SIGMAS)

No. 4

A	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
0.045	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.050	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.060	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.070	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
0.080	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.090	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002
0.100	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.120	0.013	0.012	0.012	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004
0.140	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006
0.160	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.014	0.014	0.013	0.012	0.011	0.010	0.010	0.007	0.009	0.008	0.008	0.007
0.180	0.030	0.028	0.026	0.024	0.022	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009
0.200	0.036	0.034	0.032	0.030	0.028	0.026	0.024	0.023	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.014	0.013	0.012	0.012
0.250	0.056	0.052	0.049	0.046	0.043	0.040	0.037	0.035	0.033	0.031	0.029	0.027	0.025	0.024	0.022	0.021	0.020	0.019	0.018
0.300	0.080	0.074	0.070	0.065	0.061	0.057	0.053	0.050	0.046	0.044	0.041	0.038	0.036	0.034	0.032	0.030	0.023	0.027	0.025
0.350	0.106	0.100	0.093	0.087	0.082	0.076	0.071	0.067	0.062	0.058	0.055	0.051	0.048	0.046	0.043	0.040	0.038	0.026	0.034
0.400	0.136	0.128	0.120	0.112	0.105	0.098	0.092	0.086	0.080	0.075	0.071	0.066	0.062	0.059	0.055	0.052	0.049	0.047	0.044
0.450	0.169	0.159	0.149	0.139	0.130	0.122	0.114	0.107	0.100	0.094	0.088	0.083	0.078	0.073	0.069	0.065	0.061	0.058	0.055
0.500	0.204	0.192	0.180	0.168	0.158	0.148	0.140	0.129	0.121	0.114	0.107	0.100	0.094	0.089	0.084	0.079	0.075	0.071	0.067
0.550	0.241	0.226	0.212	0.199	0.187	0.175	0.165	0.154	0.144	0.135	0.127	0.119	0.112	0.106	0.099	0.094	0.089	0.084	0.080
0.600	0.279	0.262	0.247	0.231	0.217	0.204	0.191	0.179	0.168	0.158	0.148	0.139	0.131	0.123	0.116	0.110	0.104	0.098	0.093
0.650	0.318	0.299	0.282	0.265	0.249	0.233	0.219	0.206	0.193	0.181	0.170	0.160	0.151	0.142	0.134	0.126	0.119	0.113	0.107
0.700	0.357	0.337	0.318	0.298	0.281	0.264	0.248	0.233	0.219	0.205	0.193	0.182	0.171	0.161	0.152	0.144	0.136	0.128	0.122
0.750	0.397	0.375	0.354	0.334	0.314	0.295	0.278	0.261	0.245	0.231	0.217	0.204	0.192	0.181	0.171	0.161	0.153	0.144	0.137
0.800	0.436	0.413	0.391	0.369	0.347	0.327	0.308	0.290	0.272	0.256	0.241	0.227	0.214	0.202	0.190	0.180	0.170	0.161	0.152
0.850	0.475	0.451	0.427	0.404	0.381	0.359	0.338	0.318	0.300	0.282	0.266	0.250	0.236	0.222	0.210	0.198	0.188	0.178	0.168
0.900	0.514	0.488	0.463	0.438	0.414	0.391	0.369	0.348	0.327	0.308	0.291	0.274	0.258	0.244	0.230	0.218	0.206	0.195	0.185
0.950	0.551	0.525	0.498	0.473	0.447	0.423	0.399	0.377	0.355	0.335	0.316	0.298	0.281	0.265	0.251	0.237	0.224	0.212	0.201
1.000	0.587	0.560	0.533	0.506	0.480	0.454	0.430	0.406	0.383	0.362	0.341	0.322	0.304	0.287	0.271	0.257	0.243	0.230	0.218
1.100	0.655	0.627	0.600	0.572	0.544	0.516	0.490	0.464	0.439	0.415	0.392	0.371	0.350	0.331	0.313	0.297	0.281	0.266	0.253
1.200	0.716	0.689	0.661	0.633	0.604	0.576	0.548	0.520	0.494	0.468	0.443	0.420	0.397	0.376	0.356	0.337	0.320	0.303	0.288
1.300	0.771	0.745	0.718	0.690	0.661	0.632	0.604	0.575	0.547	0.520	0.494	0.468	0.444	0.421	0.399	0.378	0.359	0.341	0.324
1.400	0.818	0.794	0.768	0.741	0.713	0.685	0.656	0.627	0.599	0.570	0.543	0.516	0.491	0.466	0.442	0.420	0.399	0.379	0.360
1.500	0.858	0.836	0.813	0.787	0.761	0.734	0.705	0.677	0.648	0.619	0.591	0.563	0.537	0.511	0.486	0.462	0.439	0.417	0.397
1.600	0.891	0.872	0.851	0.828	0.804	0.778	0.751	0.723	0.695	0.666	0.638	0.609	0.582	0.555	0.529	0.503	0.479	0.456	0.435
1.700	0.918	0.902	0.884	0.863	0.840	0.818	0.792	0.766	0.739	0.711	0.682	0.654	0.626	0.598	0.571	0.545	0.520	0.496	0.472
1.800	0.940	0.926	0.911	0.893	0.874	0.852	0.829	0.805	0.779	0.752	0.725	0.697	0.669	0.641	0.613	0.586	0.560	0.535	0.511
1.900	0.957	0.946	0.933	0.918	0.902	0.883	0.862	0.840	0.816	0.790	0.764	0.737	0.710	0.682	0.654	0.627	0.600	0.574	0.549
2.000	0.970	0.961	0.951	0.939	0.925	0.909	0.890	0.870	0.849	0.825	0.801	0.775	0.748	0.721	0.694	0.667	0.640	0.613	0.587
2.200	0.986	0.981	0.975	0.968	0.958	0.948	0.935	0.920	0.903	0.884	0.864	0.842	0.818	0.794	0.768	0.742	0.715	0.689	0.662
2.400	0.994	0.992	0.989	0.984	0.979	0.972	0.964	0.954	0.942	0.929	0.913	0.896	0.876	0.855	0.833	0.809	0.785	0.759	0.734
2.600	0.998	0.997	0.995	0.993	0.990	0.987	0.982	0.976	0.968	0.959	0.948	0.936	0.921	0.905	0.886	0.867	0.844	0.823	0.799
2.800	0.999	0.999	0.998	0.997	0.996	0.994	0.992	0.988	0.984	0.979	0.972	0.963	0.953	0.941	0.928	0.912	0.895	0.876	0.856
3.000	1.000	1.000	0.999	0.999	0.999	0.999	0.998	0.997	0.995	0.993	0.990	0.986	0.981	0.974	0.967	0.957	0.946	0.933	0.919
3.200	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996	0.994	0.991	0.987	0.983	0.977	0.970	0.961	0.950	0.938
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996	0.994	0.992	0.988	0.984	0.979	0.977
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.998	0.996	0.995	0.992	0.989	0.985	0.980
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.995	0.993
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SICMAS)

N = 4

A/R	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.055	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.065	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.075	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.080	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.085	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.090	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.095	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
0.100	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
0.105	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0.110	0.004	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.115	0.007	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.009	0.008	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.125	0.011	0.010	0.010	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.130	0.017	0.016	0.015	0.012	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
0.135	0.024	0.023	0.022	0.017	0.014	0.012	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002
0.140	0.032	0.031	0.029	0.023	0.019	0.016	0.013	0.011	0.010	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003
0.145	0.042	0.040	0.038	0.030	0.024	0.020	0.017	0.014	0.012	0.011	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.005	0.004
0.150	0.052	0.050	0.047	0.037	0.030	0.025	0.021	0.018	0.015	0.013	0.012	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005
0.155	0.063	0.060	0.057	0.045	0.037	0.030	0.025	0.022	0.019	0.016	0.014	0.013	0.011	0.010	0.009	0.008	0.008	0.007	0.006
0.160	0.076	0.072	0.068	0.054	0.044	0.036	0.030	0.026	0.022	0.019	0.017	0.015	0.013	0.012	0.011	0.010	0.009	0.008	0.008
0.165	0.088	0.084	0.080	0.063	0.051	0.042	0.035	0.030	0.026	0.023	0.020	0.018	0.016	0.014	0.013	0.012	0.011	0.010	0.009
0.170	0.102	0.096	0.092	0.073	0.059	0.049	0.041	0.035	0.030	0.026	0.023	0.020	0.018	0.016	0.015	0.013	0.012	0.011	0.010
0.175	0.115	0.110	0.104	0.083	0.067	0.055	0.046	0.040	0.034	0.030	0.026	0.023	0.021	0.019	0.017	0.015	0.014	0.013	0.012
0.180	0.130	0.123	0.117	0.093	0.075	0.062	0.052	0.045	0.038	0.033	0.029	0.026	0.023	0.021	0.019	0.017	0.016	0.014	0.013
0.185	0.145	0.137	0.131	0.103	0.084	0.069	0.058	0.050	0.043	0.037	0.033	0.029	0.026	0.023	0.021	0.019	0.017	0.016	0.014
0.190	0.160	0.152	0.144	0.114	0.093	0.077	0.064	0.055	0.047	0.041	0.036	0.032	0.029	0.026	0.023	0.021	0.019	0.018	0.016
0.195	0.175	0.167	0.159	0.125	0.102	0.084	0.071	0.060	0.052	0.045	0.040	0.035	0.031	0.028	0.025	0.023	0.021	0.019	0.018
0.200	0.191	0.182	0.173	0.137	0.111	0.092	0.077	0.066	0.057	0.049	0.043	0.038	0.034	0.031	0.028	0.025	0.023	0.021	0.019
0.205	0.207	0.197	0.187	0.148	0.120	0.099	0.084	0.071	0.061	0.053	0.047	0.042	0.037	0.033	0.030	0.027	0.025	0.023	0.021
0.210	0.224	0.214	0.203	0.163	0.133	0.111	0.097	0.082	0.071	0.062	0.054	0.048	0.043	0.039	0.035	0.032	0.029	0.026	0.024
0.215	0.240	0.228	0.217	0.172	0.139	0.115	0.097	0.082	0.071	0.062	0.054	0.048	0.043	0.039	0.035	0.032	0.029	0.026	0.024
0.220	0.257	0.245	0.234	0.186	0.151	0.125	0.106	0.091	0.081	0.071	0.062	0.055	0.049	0.044	0.040	0.036	0.033	0.030	0.028
0.225	0.273	0.260	0.247	0.196	0.159	0.131	0.110	0.094	0.081	0.071	0.062	0.055	0.049	0.044	0.040	0.036	0.033	0.030	0.028
0.230	0.288	0.273	0.259	0.205	0.165	0.135	0.113	0.096	0.081	0.070	0.060	0.052	0.046	0.041	0.037	0.033	0.030	0.027	0.025
0.235	0.304	0.287	0.272	0.215	0.173	0.141	0.118	0.100	0.089	0.078	0.068	0.059	0.051	0.045	0.040	0.036	0.032	0.029	0.026
0.240	0.320	0.302	0.286	0.226	0.182	0.148	0.124	0.105	0.091	0.080	0.070	0.060	0.052	0.046	0.041	0.037	0.033	0.030	0.027
0.245	0.337	0.317	0.300	0.237	0.191	0.155	0.130	0.110	0.094	0.082	0.071	0.061	0.052	0.046	0.041	0.037	0.033	0.030	0.027
0.250	0.354	0.332	0.314	0.249	0.200	0.163	0.137	0.116	0.100	0.088	0.076	0.065	0.056	0.049	0.044	0.040	0.036	0.032	0.029
0.255	0.371	0.347	0.328	0.261	0.210	0.171	0.144	0.122	0.105	0.092	0.080	0.069	0.059	0.051	0.045	0.040	0.036	0.032	0.029
0.260	0.388	0.362	0.342	0.272	0.219	0.178	0.150	0.127	0.109	0.095	0.082	0.071	0.061	0.052	0.046	0.041	0.037	0.033	0.030
0.265	0.404	0.376	0.355	0.283	0.228	0.185	0.156	0.132	0.113	0.099	0.086	0.074	0.063	0.054	0.048	0.043	0.039	0.035	0.031
0.270	0.420	0.390	0.368	0.295	0.238	0.193	0.163	0.138	0.118	0.104	0.091	0.079	0.067	0.057	0.050	0.044	0.040	0.036	0.032
0.275	0.436	0.404	0.381	0.306	0.247	0.200	0.169	0.143	0.122	0.107	0.094	0.081	0.069	0.058	0.050	0.044	0.040	0.036	0.032
0.280	0.452	0.418	0.394	0.317	0.256	0.207	0.175	0.148	0.126	0.110	0.096	0.083	0.071	0.060	0.051	0.045	0.041	0.037	0.033
0.285	0.467	0.432	0.407	0.327	0.265	0.214	0.181	0.153	0.130	0.113	0.100	0.087	0.074	0.062	0.052	0.046	0.042	0.038	0.034
0.290	0.482	0.445	0.419	0.337	0.273	0.220	0.186	0.157	0.133	0.115	0.101	0.088	0.075	0.063	0.053	0.047	0.043	0.039	0.035
0.295	0.497	0.458	0.431	0.345	0.279	0.224	0.189	0.159	0.134	0.116	0.102	0.089	0.076	0.064	0.054</				



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N= 3

A	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
0.025	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.035	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.040	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002
0.045	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003
0.050	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003
0.060	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.005
0.070	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006
0.080	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.010	0.009	0.008	0.008
0.090	0.020	0.020	0.020	0.020	0.019	0.019	0.018	0.018	0.017	0.017	0.016	0.015	0.014	0.014	0.013	0.012	0.011	0.011	0.010
0.100	0.025	0.025	0.024	0.024	0.024	0.023	0.023	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	
0.120	0.035	0.035	0.035	0.035	0.034	0.033	0.032	0.031	0.030	0.029	0.028	0.027	0.025	0.024	0.023	0.021	0.020	0.019	0.018
0.140	0.048	0.048	0.047	0.047	0.046	0.045	0.044	0.043	0.041	0.039	0.038	0.036	0.034	0.033	0.031	0.029	0.027	0.026	0.024
0.160	0.062	0.062	0.061	0.061	0.060	0.058	0.057	0.055	0.053	0.051	0.049	0.047	0.045	0.042	0.040	0.038	0.035	0.033	0.031
0.180	0.078	0.078	0.077	0.076	0.075	0.073	0.071	0.069	0.067	0.064	0.062	0.059	0.056	0.053	0.050	0.047	0.045	0.042	0.039
0.200	0.095	0.095	0.094	0.093	0.092	0.090	0.087	0.085	0.082	0.079	0.076	0.072	0.069	0.065	0.062	0.058	0.055	0.051	0.048
0.250	0.145	0.144	0.143	0.142	0.139	0.137	0.133	0.129	0.125	0.121	0.116	0.111	0.105	0.100	0.095	0.089	0.084	0.079	0.074
0.300	0.201	0.201	0.200	0.197	0.194	0.191	0.186	0.181	0.175	0.169	0.162	0.155	0.148	0.141	0.133	0.126	0.119	0.112	0.105
0.350	0.264	0.263	0.262	0.259	0.255	0.250	0.244	0.238	0.230	0.222	0.214	0.205	0.196	0.186	0.177	0.167	0.158	0.148	0.139
0.400	0.330	0.329	0.327	0.324	0.319	0.313	0.306	0.299	0.290	0.280	0.270	0.259	0.247	0.236	0.224	0.212	0.200	0.189	0.178
0.450	0.397	0.396	0.394	0.390	0.385	0.379	0.371	0.362	0.351	0.340	0.328	0.315	0.302	0.288	0.274	0.260	0.246	0.232	0.219
0.500	0.465	0.464	0.461	0.457	0.452	0.444	0.435	0.425	0.414	0.401	0.388	0.373	0.358	0.342	0.326	0.310	0.294	0.278	0.262
0.550	0.530	0.530	0.527	0.523	0.517	0.509	0.499	0.488	0.476	0.462	0.447	0.431	0.415	0.397	0.379	0.361	0.343	0.325	0.307
0.600	0.593	0.593	0.590	0.585	0.579	0.571	0.561	0.549	0.536	0.522	0.506	0.489	0.471	0.452	0.432	0.413	0.392	0.372	0.352
0.650	0.652	0.651	0.649	0.644	0.638	0.629	0.619	0.608	0.594	0.579	0.563	0.545	0.526	0.506	0.485	0.464	0.442	0.420	0.398
0.700	0.706	0.705	0.703	0.698	0.692	0.684	0.674	0.662	0.649	0.633	0.617	0.598	0.579	0.558	0.536	0.513	0.490	0.467	0.444
0.750	0.755	0.754	0.751	0.747	0.741	0.733	0.724	0.712	0.699	0.684	0.667	0.649	0.629	0.607	0.585	0.562	0.538	0.513	0.488
0.800	0.798	0.797	0.795	0.791	0.785	0.778	0.768	0.757	0.745	0.730	0.714	0.695	0.676	0.654	0.632	0.608	0.583	0.558	0.532
0.850	0.836	0.835	0.833	0.829	0.824	0.817	0.808	0.798	0.786	0.772	0.756	0.738	0.719	0.698	0.675	0.651	0.626	0.601	0.574
0.900	0.868	0.867	0.865	0.862	0.857	0.851	0.843	0.833	0.822	0.809	0.794	0.777	0.758	0.738	0.716	0.692	0.667	0.641	0.614
0.950	0.895	0.895	0.893	0.890	0.886	0.880	0.873	0.864	0.854	0.842	0.828	0.812	0.794	0.774	0.753	0.730	0.705	0.679	0.653
1.000	0.918	0.917	0.916	0.913	0.909	0.904	0.898	0.890	0.881	0.870	0.857	0.843	0.826	0.807	0.787	0.765	0.741	0.715	0.689
1.100	0.951	0.951	0.950	0.944	0.945	0.942	0.937	0.931	0.924	0.915	0.905	0.893	0.879	0.863	0.845	0.825	0.803	0.779	0.754
1.200	0.973	0.972	0.972	0.970	0.968	0.966	0.963	0.958	0.953	0.947	0.939	0.929	0.918	0.905	0.890	0.873	0.854	0.832	0.809
1.300	0.985	0.985	0.985	0.984	0.983	0.981	0.979	0.976	0.972	0.968	0.962	0.955	0.946	0.936	0.924	0.910	0.894	0.876	0.855
1.400	0.993	0.992	0.992	0.992	0.991	0.990	0.989	0.987	0.984	0.981	0.977	0.972	0.966	0.959	0.949	0.938	0.925	0.910	0.893
1.500	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.993	0.991	0.989	0.987	0.984	0.979	0.974	0.967	0.959	0.949	0.936	0.922
1.600	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.996	0.996	0.994	0.993	0.991	0.988	0.984	0.979	0.973	0.966	0.956	0.945
1.700	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.995	0.993	0.991	0.987	0.983	0.977	0.971	0.962
1.800	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.995	0.992	0.990	0.986	0.981	0.975
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.994	0.991	0.988
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.998	0.998	0.996	0.995	0.993
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			



(R AND A EXPRESSED IN SIGMAS)

**Mar 5**

	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000
0.040	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.045	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.050	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.060	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.070	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001
0.080	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002
0.090	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003
0.100	0.012	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004
0.120	0.017	0.015	0.014	0.013	0.013	0.012	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.006	0.005
0.140	0.022	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007
0.160	0.029	0.027	0.025	0.024	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009
0.180	0.037	0.034	0.032	0.030	0.028	0.026	0.024	0.023	0.021	0.020	0.019	0.018	0.016	0.015	0.015	0.014	0.013	0.012	0.012
0.200	0.045	0.042	0.039	0.037	0.034	0.032	0.030	0.028	0.026	0.025	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015	0.014
0.250	0.069	0.065	0.061	0.057	0.053	0.050	0.046	0.043	0.040	0.038	0.035	0.033	0.031	0.029	0.028	0.026	0.025	0.023	0.022
0.300	0.098	0.092	0.086	0.080	0.075	0.070	0.066	0.061	0.057	0.054	0.050	0.047	0.044	0.042	0.039	0.037	0.035	0.033	0.031
0.350	0.131	0.123	0.115	0.107	0.100	0.094	0.088	0.082	0.077	0.072	0.068	0.063	0.060	0.056	0.053	0.050	0.047	0.045	0.042
0.400	0.167	0.157	0.147	0.137	0.128	0.120	0.112	0.105	0.098	0.092	0.087	0.081	0.076	0.072	0.068	0.064	0.060	0.057	0.054
0.450	0.206	0.193	0.181	0.170	0.159	0.149	0.139	0.130	0.122	0.114	0.107	0.101	0.095	0.089	0.084	0.079	0.075	0.071	0.067
0.500	0.247	0.232	0.218	0.204	0.191	0.179	0.168	0.157	0.147	0.138	0.130	0.122	0.115	0.108	0.102	0.096	0.091	0.086	0.081
0.550	0.289	0.272	0.256	0.240	0.225	0.211	0.198	0.186	0.174	0.163	0.153	0.144	0.135	0.128	0.120	0.114	0.107	0.102	0.096
0.600	0.333	0.313	0.295	0.277	0.260	0.244	0.229	0.215	0.202	0.189	0.178	0.167	0.157	0.148	0.140	0.132	0.125	0.118	0.112
0.650	0.376	0.355	0.335	0.315	0.296	0.278	0.261	0.245	0.230	0.216	0.203	0.191	0.180	0.170	0.160	0.151	0.143	0.135	0.128
0.700	0.420	0.397	0.375	0.354	0.333	0.313	0.294	0.277	0.260	0.244	0.230	0.216	0.203	0.192	0.181	0.171	0.161	0.153	0.145
0.750	0.464	0.439	0.415	0.392	0.370	0.348	0.327	0.308	0.290	0.272	0.256	0.241	0.227	0.214	0.202	0.191	0.181	0.171	0.162
0.800	0.506	0.480	0.455	0.430	0.406	0.383	0.361	0.340	0.320	0.301	0.283	0.267	0.251	0.237	0.224	0.211	0.200	0.189	0.180
0.850	0.547	0.521	0.494	0.468	0.442	0.418	0.394	0.371	0.350	0.330	0.311	0.293	0.276	0.260	0.246	0.232	0.220	0.208	0.197
0.900	0.587	0.559	0.532	0.505	0.478	0.452	0.427	0.403	0.380	0.358	0.338	0.319	0.301	0.284	0.268	0.253	0.240	0.227	0.215
0.950	0.625	0.597	0.569	0.541	0.513	0.486	0.460	0.434	0.410	0.387	0.365	0.345	0.325	0.307	0.290	0.275	0.260	0.246	0.233
1.000	0.661	0.633	0.604	0.575	0.547	0.519	0.492	0.465	0.440	0.415	0.392	0.371	0.350	0.331	0.313	0.296	0.280	0.265	0.252
1.100	0.727	0.699	0.670	0.641	0.612	0.583	0.554	0.526	0.498	0.472	0.446	0.422	0.400	0.378	0.358	0.339	0.321	0.304	0.289
1.200	0.784	0.758	0.730	0.701	0.672	0.642	0.613	0.583	0.555	0.527	0.500	0.474	0.449	0.425	0.403	0.382	0.362	0.344	0.326
1.300	0.833	0.808	0.783	0.755	0.727	0.698	0.668	0.638	0.609	0.580	0.551	0.524	0.497	0.472	0.448	0.425	0.404	0.383	0.364
1.400	0.873	0.852	0.828	0.803	0.776	0.748	0.719	0.690	0.660	0.631	0.601	0.573	0.545	0.518	0.493	0.468	0.445	0.423	0.402
1.500	0.906	0.887	0.867	0.844	0.819	0.793	0.766	0.737	0.708	0.679	0.650	0.621	0.592	0.564	0.537	0.512	0.487	0.463	0.441
1.600	0.932	0.916	0.899	0.879	0.857	0.833	0.808	0.781	0.753	0.725	0.696	0.666	0.638	0.609	0.581	0.554	0.528	0.504	0.480
1.700	0.952	0.939	0.925	0.908	0.889	0.868	0.845	0.820	0.794	0.767	0.739	0.710	0.681	0.653	0.624	0.597	0.570	0.544	0.519
1.800	0.967	0.957	0.945	0.932	0.916	0.897	0.877	0.855	0.831	0.806	0.779	0.751	0.723	0.695	0.666	0.638	0.611	0.584	0.558
1.900	0.978	0.970	0.961	0.950	0.937	0.922	0.905	0.885	0.864	0.841	0.816	0.790	0.763	0.735	0.707	0.679	0.651	0.624	0.597
2.000	0.985	0.980	0.973	0.965	0.954	0.942	0.928	0.911	0.892	0.872	0.849	0.825	0.799	0.773	0.746	0.718	0.690	0.663	0.636
2.200	0.994	0.992	0.988	0.984	0.978	0.970	0.961	0.950	0.937	0.921	0.904	0.884	0.863	0.840	0.816	0.791	0.764	0.738	0.711
2.400	0.998	0.997	0.995	0.993	0.990	0.986	0.981	0.974	0.966	0.956	0.944	0.929	0.913	0.895	0.875	0.853	0.830	0.806	0.780
2.600	0.999	0.999	0.998	0.998	0.996	0.994	0.992	0.988	0.983	0.977	0.970	0.961	0.949	0.936	0.921	0.904	0.885	0.864	0.842
2.800	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.993	0.990	0.985	0.980	0.973	0.964	0.954	0.942	0.927	0.911	0.893
3.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.996	0.994	0.991	0.987	0.982	0.975	0.967	0.958	0.946
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.998	0.996	0.994	0.992	0.988	0.984	0.978	0.970
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.993	0.989	0.979
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.993	0.990
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N= 5

A/R	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.080	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.090	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.100	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0.120	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
0.140	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.160	0.009	0.008	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.180	0.011	0.010	0.010	0.008	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001
0.200	0.014	0.013	0.012	0.010	0.008	0.006	0.005	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.250	0.021	0.020	0.019	0.015	0.012	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002
0.300	0.030	0.028	0.027	0.021	0.017	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003
0.350	0.040	0.038	0.036	0.029	0.023	0.019	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004
0.400	0.051	0.049	0.046	0.037	0.030	0.025	0.021	0.018	0.015	0.013	0.012	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005
0.450	0.064	0.061	0.058	0.046	0.037	0.030	0.026	0.022	0.019	0.016	0.014	0.013	0.011	0.010	0.009	0.008	0.008	0.007	0.006
0.500	0.077	0.073	0.070	0.055	0.045	0.037	0.031	0.026	0.023	0.020	0.017	0.015	0.014	0.012	0.011	0.010	0.009	0.008	0.008
0.550	0.091	0.087	0.082	0.065	0.053	0.044	0.037	0.031	0.027	0.023	0.021	0.018	0.016	0.015	0.013	0.012	0.011	0.010	0.009
0.600	0.106	0.101	0.096	0.076	0.061	0.051	0.043	0.036	0.031	0.027	0.024	0.021	0.019	0.017	0.015	0.014	0.013	0.012	0.011
0.650	0.122	0.115	0.110	0.087	0.070	0.058	0.049	0.042	0.036	0.031	0.027	0.024	0.022	0.019	0.018	0.016	0.015	0.013	0.012
0.700	0.137	0.131	0.124	0.098	0.080	0.066	0.055	0.047	0.041	0.035	0.031	0.028	0.025	0.022	0.020	0.018	0.016	0.015	0.014
0.750	0.154	0.146	0.139	0.110	0.089	0.074	0.062	0.053	0.045	0.040	0.035	0.031	0.027	0.025	0.022	0.020	0.018	0.017	0.015
0.800	0.170	0.162	0.154	0.122	0.099	0.082	0.069	0.058	0.050	0.044	0.039	0.034	0.030	0.027	0.025	0.022	0.020	0.019	0.017
0.850	0.187	0.178	0.169	0.134	0.108	0.090	0.075	0.064	0.055	0.048	0.042	0.038	0.034	0.030	0.027	0.025	0.022	0.021	0.019
0.900	0.204	0.194	0.185	0.146	0.118	0.098	0.082	0.070	0.060	0.053	0.046	0.041	0.037	0.033	0.030	0.027	0.024	0.022	0.021
0.950	0.222	0.211	0.200	0.159	0.128	0.106	0.089	0.076	0.066	0.057	0.050	0.045	0.040	0.036	0.032	0.029	0.027	0.024	0.022
1.000	0.239	0.227	0.216	0.171	0.139	0.115	0.096	0.082	0.071	0.062	0.054	0.048	0.043	0.038	0.035	0.031	0.029	0.026	0.024
1.100	0.274	0.261	0.248	0.196	0.159	0.132	0.111	0.094	0.081	0.071	0.062	0.055	0.049	0.044	0.040	0.036	0.033	0.030	0.028
1.200	0.310	0.295	0.281	0.222	0.180	0.149	0.125	0.107	0.092	0.080	0.070	0.062	0.056	0.050	0.045	0.041	0.037	0.034	0.031
1.300	0.346	0.329	0.314	0.249	0.202	0.167	0.140	0.119	0.103	0.090	0.079	0.070	0.062	0.056	0.050	0.046	0.042	0.038	0.035
1.400	0.383	0.364	0.347	0.275	0.223	0.185	0.155	0.132	0.114	0.099	0.087	0.077	0.069	0.062	0.056	0.051	0.046	0.042	0.039
1.500	0.420	0.400	0.381	0.303	0.246	0.203	0.171	0.145	0.125	0.109	0.096	0.085	0.076	0.068	0.062	0.056	0.051	0.047	0.043
1.600	0.457	0.436	0.416	0.331	0.269	0.222	0.187	0.159	0.137	0.120	0.105	0.093	0.083	0.075	0.067	0.061	0.056	0.051	0.047
1.700	0.495	0.472	0.451	0.360	0.292	0.241	0.203	0.173	0.149	0.130	0.114	0.101	0.090	0.081	0.073	0.066	0.061	0.055	0.051
1.800	0.533	0.509	0.487	0.389	0.316	0.261	0.220	0.187	0.161	0.141	0.124	0.110	0.099	0.088	0.079	0.072	0.066	0.060	0.055
1.900	0.571	0.546	0.523	0.419	0.341	0.282	0.237	0.202	0.174	0.152	0.133	0.118	0.106	0.095	0.086	0.078	0.071	0.065	0.059
2.000	0.609	0.584	0.559	0.450	0.366	0.303	0.255	0.217	0.187	0.163	0.143	0.127	0.113	0.102	0.092	0.083	0.076	0.070	0.064
2.200	0.684	0.657	0.631	0.513	0.419	0.347	0.292	0.249	0.214	0.187	0.164	0.145	0.130	0.117	0.105	0.096	0.087	0.080	0.073
2.400	0.755	0.728	0.702	0.578	0.474	0.393	0.331	0.282	0.243	0.212	0.186	0.165	0.147	0.132	0.119	0.108	0.099	0.090	0.083
2.600	0.819	0.794	0.769	0.644	0.532	0.442	0.372	0.317	0.273	0.238	0.209	0.185	0.165	0.148	0.134	0.122	0.111	0.101	0.093
2.800	0.873	0.852	0.830	0.708	0.591	0.493	0.415	0.354	0.305	0.266	0.234	0.207	0.185	0.166	0.150	0.136	0.124	0.113	0.104
3.000	0.917	0.900	0.881	0.770	0.651	0.546	0.460	0.393	0.339	0.295	0.259	0.230	0.205	0.184	0.166	0.151	0.137	0.125	0.115
3.200	0.950	0.937	0.923	0.827	0.711	0.600	0.508	0.433	0.374	0.325	0.286	0.253	0.226	0.203	0.183	0.166	0.151	0.138	0.127
3.400	0.972	0.964	0.954	0.876	0.768	0.656	0.557	0.476	0.410	0.357	0.314	0.278	0.248	0.223	0.201	0.182	0.166	0.152	0.140
3.600	0.986	0.981	0.974	0.917	0.822	0.711	0.607	0.520	0.448	0.391	0.343	0.304	0.271	0.244	0.220	0.199	0.182	0.166	0.153
3.800	0.994	0.991	0.987	0.948	0.870	0.765	0.658	0.565	0.488	0.425	0.374	0.331	0.295	0.265	0.239	0.217	0.198	0.181	0.166
4.000	0.997	0.996	0.994	0.970	0.910	0.816	0.710	0.612	0.529	0.462	0.406	0.359	0.321	0.288	0.260	0.236	0.215	0.196	0.180
4.500	1.000	1.000	1.000	0.994	0.974	0.920	0.832	0.732	0.638	0.558	0.490	0.434	0.388	0.348	0.314	0.285	0.259	0.237	0.218
5.000	1.000	1.000	1.000	0.999	0.995	0.977	0.927	0.846	0.752	0.661	0.583	0.516	0.461	0.413	0.373	0.338	0.308	0.282	0.259
5.500	1.000	1.000	1.000	1.000	1.000	0.995	0.979	0.934	0.858	0.768	0.681	0.605	0.540	0.485	0.437				



(R AND A EXPRESSED IN SIGMAS)

28-6

A \ R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.025	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.035	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.040	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002
0.045	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003
0.050	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004
0.060	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.006
0.070	0.015	0.015	0.014	0.014	0.014	0.014	0.013	0.013	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007
0.080	0.019	0.019	0.019	0.019	0.018	0.018	0.017	0.017	0.016	0.016	0.015	0.014	0.014	0.013	0.012	0.011	0.011	0.010	0.009
0.090	0.024	0.024	0.024	0.023	0.023	0.023	0.022	0.021	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.014	0.013	0.012
0.100	0.030	0.029	0.029	0.029	0.028	0.028	0.027	0.026	0.025	0.024	0.023	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015
0.120	0.042	0.042	0.042	0.041	0.041	0.040	0.039	0.038	0.036	0.035	0.033	0.032	0.030	0.029	0.027	0.026	0.024	0.023	0.021
0.140	0.057	0.057	0.057	0.056	0.055	0.054	0.052	0.051	0.049	0.047	0.045	0.043	0.041	0.039	0.037	0.035	0.033	0.031	0.029
0.160	0.074	0.074	0.073	0.072	0.071	0.070	0.068	0.066	0.064	0.061	0.059	0.056	0.053	0.051	0.048	0.045	0.042	0.040	0.037
0.180	0.093	0.092	0.092	0.091	0.089	0.087	0.085	0.083	0.080	0.077	0.074	0.070	0.067	0.063	0.060	0.057	0.053	0.050	0.047
0.200	0.113	0.113	0.112	0.111	0.109	0.107	0.104	0.101	0.098	0.094	0.090	0.086	0.082	0.078	0.074	0.069	0.065	0.061	0.058
0.250	0.171	0.171	0.169	0.168	0.165	0.162	0.158	0.153	0.148	0.143	0.137	0.131	0.125	0.119	0.112	0.106	0.100	0.094	0.088
0.300	0.236	0.236	0.235	0.232	0.229	0.224	0.219	0.213	0.206	0.199	0.191	0.183	0.175	0.166	0.157	0.149	0.140	0.132	0.124
0.350	0.307	0.307	0.305	0.302	0.298	0.292	0.286	0.278	0.270	0.261	0.251	0.240	0.230	0.219	0.208	0.197	0.186	0.175	0.165
0.400	0.381	0.380	0.378	0.375	0.370	0.363	0.355	0.347	0.337	0.326	0.314	0.302	0.289	0.275	0.262	0.248	0.235	0.222	0.209
0.450	0.455	0.454	0.452	0.448	0.442	0.435	0.426	0.416	0.405	0.393	0.379	0.365	0.350	0.334	0.319	0.303	0.287	0.271	0.255
0.500	0.527	0.527	0.524	0.520	0.514	0.506	0.496	0.485	0.473	0.459	0.444	0.429	0.412	0.394	0.376	0.358	0.340	0.322	0.304
0.550	0.596	0.596	0.593	0.588	0.581	0.574	0.564	0.552	0.539	0.525	0.509	0.492	0.473	0.454	0.435	0.414	0.394	0.374	0.354
0.600	0.660	0.659	0.657	0.652	0.646	0.638	0.628	0.616	0.602	0.587	0.570	0.552	0.533	0.513	0.492	0.470	0.448	0.426	0.403
0.650	0.718	0.718	0.715	0.710	0.704	0.696	0.686	0.674	0.661	0.646	0.629	0.610	0.590	0.569	0.547	0.524	0.501	0.477	0.453
0.700	0.770	0.769	0.767	0.762	0.756	0.749	0.739	0.728	0.715	0.700	0.683	0.664	0.644	0.623	0.600	0.576	0.552	0.527	0.501
0.750	0.815	0.814	0.812	0.808	0.802	0.795	0.786	0.775	0.753	0.748	0.732	0.714	0.694	0.673	0.650	0.626	0.600	0.575	0.548
0.800	0.853	0.853	0.851	0.847	0.842	0.835	0.827	0.817	0.805	0.792	0.776	0.759	0.739	0.718	0.696	0.672	0.646	0.620	0.593
0.850	0.885	0.885	0.883	0.880	0.875	0.869	0.862	0.853	0.842	0.829	0.815	0.799	0.780	0.760	0.738	0.714	0.689	0.663	0.635
0.900	0.912	0.911	0.910	0.907	0.903	0.898	0.891	0.883	0.874	0.862	0.849	0.834	0.816	0.797	0.776	0.753	0.729	0.703	0.675
0.950	0.933	0.933	0.931	0.929	0.926	0.921	0.916	0.909	0.900	0.890	0.878	0.864	0.848	0.830	0.810	0.789	0.765	0.739	0.713
1.000	0.950	0.950	0.949	0.947	0.944	0.940	0.935	0.929	0.922	0.913	0.902	0.890	0.876	0.859	0.841	0.820	0.798	0.773	0.747
1.100	0.973	0.973	0.973	0.971	0.969	0.967	0.964	0.959	0.954	0.948	0.940	0.930	0.919	0.906	0.890	0.873	0.853	0.831	0.807
1.200	0.987	0.987	0.986	0.985	0.984	0.983	0.981	0.978	0.974	0.970	0.964	0.957	0.949	0.939	0.927	0.913	0.896	0.878	0.857
1.300	0.994	0.994	0.993	0.993	0.992	0.991	0.990	0.988	0.986	0.983	0.980	0.975	0.969	0.962	0.953	0.942	0.929	0.914	0.896
1.400	0.997	0.997	0.997	0.997	0.996	0.996	0.995	0.994	0.993	0.991	0.989	0.986	0.982	0.977	0.970	0.963	0.953	0.941	0.927
1.500	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.997	0.997	0.996	0.994	0.992	0.990	0.987	0.982	0.977	0.969	0.960	0.950
1.600	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.995	0.992	0.990	0.986	0.981	0.974	0.966
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.996	0.994	0.992	0.988	0.984	0.978
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.995	0.993	0.990	0.986
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996	0.994	0.992
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.995
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				



(B AND A EXPRESSED IN SIGMAS)

No. 6

A	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
0.035	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.040	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.045	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.050	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.060	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.000
0.070	0.007	0.006	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002
0.080	0.009	0.008	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.090	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004
0.100	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.004
0.120	0.020	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.006
0.140	0.027	0.025	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008
0.160	0.035	0.033	0.030	0.028	0.027	0.025	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011
0.180	0.044	0.041	0.038	0.036	0.033	0.031	0.029	0.027	0.025	0.024	0.022	0.021	0.020	0.019	0.017	0.016	0.016	0.015	0.014
0.200	0.054	0.050	0.047	0.044	0.041	0.038	0.036	0.033	0.031	0.029	0.027	0.026	0.024	0.023	0.021	0.020	0.019	0.018	0.017
0.250	0.083	0.077	0.072	0.068	0.063	0.059	0.055	0.051	0.048	0.045	0.042	0.040	0.037	0.035	0.033	0.031	0.029	0.028	0.026
0.300	0.116	0.109	0.102	0.095	0.089	0.083	0.078	0.073	0.066	0.064	0.060	0.056	0.053	0.050	0.047	0.044	0.042	0.039	0.037
0.350	0.154	0.145	0.136	0.127	0.119	0.111	0.104	0.097	0.091	0.085	0.080	0.075	0.070	0.066	0.062	0.059	0.056	0.053	0.050
0.400	0.196	0.184	0.172	0.161	0.151	0.141	0.132	0.124	0.116	0.109	0.102	0.096	0.090	0.085	0.080	0.075	0.071	0.067	0.064
0.450	0.240	0.226	0.212	0.199	0.186	0.174	0.163	0.153	0.143	0.134	0.126	0.118	0.111	0.105	0.099	0.093	0.088	0.083	0.079
0.500	0.286	0.269	0.253	0.238	0.223	0.209	0.196	0.182	0.172	0.161	0.151	0.142	0.134	0.126	0.119	0.112	0.106	0.100	0.095
0.550	0.334	0.314	0.296	0.278	0.261	0.245	0.230	0.215	0.202	0.190	0.178	0.167	0.157	0.148	0.140	0.132	0.125	0.118	0.112
0.600	0.382	0.360	0.339	0.319	0.300	0.282	0.265	0.248	0.233	0.219	0.206	0.193	0.182	0.171	0.162	0.153	0.144	0.137	0.129
0.650	0.429	0.406	0.383	0.361	0.340	0.319	0.300	0.282	0.265	0.249	0.234	0.220	0.207	0.195	0.184	0.174	0.164	0.156	0.147
0.700	0.476	0.451	0.426	0.402	0.379	0.357	0.336	0.316	0.297	0.279	0.263	0.247	0.233	0.219	0.207	0.196	0.185	0.175	0.166
0.750	0.522	0.495	0.469	0.443	0.418	0.395	0.371	0.350	0.329	0.310	0.292	0.275	0.259	0.244	0.230	0.218	0.206	0.195	0.185
0.800	0.566	0.537	0.511	0.484	0.457	0.432	0.407	0.384	0.362	0.341	0.321	0.302	0.285	0.269	0.254	0.240	0.227	0.215	0.204
0.850	0.608	0.579	0.551	0.523	0.495	0.468	0.442	0.417	0.394	0.371	0.350	0.330	0.311	0.294	0.277	0.262	0.248	0.235	0.223
0.900	0.647	0.619	0.590	0.561	0.532	0.504	0.477	0.451	0.425	0.401	0.379	0.357	0.337	0.319	0.301	0.285	0.269	0.255	0.242
0.950	0.685	0.656	0.627	0.597	0.568	0.539	0.510	0.483	0.457	0.431	0.407	0.385	0.363	0.343	0.325	0.307	0.291	0.275	0.261
1.000	0.720	0.691	0.662	0.632	0.602	0.572	0.543	0.515	0.487	0.461	0.436	0.412	0.389	0.368	0.348	0.330	0.312	0.296	0.281
1.100	0.782	0.754	0.726	0.697	0.667	0.636	0.606	0.576	0.547	0.519	0.492	0.466	0.441	0.417	0.395	0.374	0.355	0.337	0.319
1.200	0.834	0.809	0.782	0.754	0.725	0.695	0.665	0.634	0.604	0.575	0.546	0.518	0.492	0.466	0.442	0.419	0.398	0.377	0.358
1.300	0.876	0.854	0.830	0.804	0.777	0.748	0.718	0.688	0.658	0.628	0.598	0.569	0.541	0.514	0.488	0.464	0.440	0.418	0.398
1.400	0.910	0.891	0.870	0.847	0.822	0.795	0.767	0.738	0.708	0.678	0.648	0.619	0.590	0.561	0.534	0.508	0.483	0.460	0.437
1.500	0.936	0.921	0.903	0.883	0.861	0.837	0.811	0.783	0.755	0.725	0.696	0.666	0.637	0.608	0.579	0.552	0.526	0.501	0.477
1.600	0.956	0.943	0.930	0.913	0.894	0.872	0.849	0.824	0.797	0.769	0.740	0.711	0.682	0.652	0.624	0.595	0.568	0.542	0.517
1.700	0.971	0.962	0.950	0.937	0.921	0.903	0.882	0.860	0.835	0.809	0.782	0.753	0.725	0.696	0.667	0.638	0.610	0.583	0.557
1.800	0.981	0.974	0.966	0.955	0.942	0.927	0.910	0.890	0.869	0.845	0.820	0.793	0.765	0.737	0.708	0.680	0.651	0.624	0.597
1.900	0.988	0.983	0.977	0.969	0.959	0.947	0.933	0.916	0.897	0.876	0.853	0.829	0.803	0.776	0.748	0.720	0.691	0.663	0.636
2.000	0.993	0.989	0.985	0.979	0.972	0.963	0.951	0.938	0.922	0.904	0.883	0.861	0.837	0.812	0.785	0.758	0.730	0.702	0.675
2.200	0.998	0.996	0.994	0.992	0.988	0.983	0.976	0.968	0.958	0.945	0.931	0.914	0.895	0.874	0.851	0.827	0.802	0.776	0.749
2.400	0.999	0.999	0.998	0.997	0.995	0.993	0.990	0.985	0.979	0.972	0.963	0.951	0.938	0.922	0.904	0.885	0.863	0.840	0.816
2.600	1.000	1.000	0.999	0.999	0.999	0.998	0.998	0.996	0.994	0.991	0.987	0.982	0.975	0.967	0.956	0.944	0.929	0.912	0.894
2.800	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992	0.989	0.984	0.978	0.970	0.960	0.948	0.935
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.993	0.990	0.986	0.980	0.972	0.964	0.953
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.996	0.994	0.991	0.987	0.975
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.988
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.997	0.995
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N = 6

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.080	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.090	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0.100	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
0.120	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.140	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.160	0.010	0.010	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.180	0.013	0.013	0.012	0.009	0.008	0.006	0.005	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.200	0.016	0.015	0.015	0.012	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.250	0.025	0.024	0.023	0.018	0.014	0.012	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.300	0.035	0.034	0.032	0.025	0.020	0.017	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004
0.350	0.047	0.045	0.043	0.034	0.027	0.023	0.019	0.016	0.014	0.012	0.011	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.005
0.400	0.061	0.057	0.055	0.043	0.035	0.029	0.024	0.021	0.018	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.007	0.006
0.450	0.075	0.071	0.068	0.053	0.043	0.036	0.030	0.026	0.022	0.019	0.017	0.015	0.013	0.012	0.011	0.010	0.009	0.008	0.008
0.500	0.090	0.086	0.081	0.064	0.052	0.043	0.036	0.031	0.027	0.023	0.020	0.018	0.016	0.014	0.013	0.012	0.011	0.010	0.009
0.550	0.106	0.101	0.096	0.076	0.061	0.051	0.043	0.036	0.031	0.027	0.024	0.021	0.019	0.017	0.015	0.014	0.013	0.012	0.011
0.600	0.123	0.117	0.111	0.088	0.071	0.059	0.049	0.042	0.036	0.032	0.028	0.025	0.022	0.020	0.018	0.016	0.015	0.013	0.012
0.650	0.140	0.133	0.126	0.100	0.081	0.067	0.056	0.048	0.041	0.036	0.032	0.028	0.025	0.022	0.020	0.018	0.017	0.015	0.014
0.700	0.157	0.150	0.142	0.112	0.091	0.075	0.063	0.054	0.047	0.041	0.036	0.032	0.028	0.025	0.023	0.021	0.019	0.017	0.016
0.750	0.175	0.166	0.158	0.125	0.101	0.084	0.071	0.060	0.052	0.045	0.040	0.035	0.031	0.028	0.025	0.023	0.021	0.019	0.018
0.800	0.193	0.184	0.175	0.138	0.112	0.093	0.078	0.066	0.057	0.050	0.044	0.039	0.035	0.031	0.028	0.025	0.023	0.021	0.019
0.850	0.211	0.201	0.191	0.141	0.122	0.101	0.085	0.073	0.063	0.054	0.048	0.042	0.038	0.034	0.031	0.028	0.025	0.023	0.021
0.900	0.230	0.218	0.208	0.164	0.133	0.110	0.093	0.079	0.068	0.059	0.052	0.046	0.041	0.037	0.033	0.030	0.028	0.025	0.023
0.950	0.248	0.236	0.224	0.177	0.144	0.119	0.100	0.085	0.073	0.064	0.056	0.050	0.044	0.040	0.036	0.033	0.030	0.027	0.025
1.000	0.266	0.253	0.241	0.191	0.155	0.128	0.107	0.092	0.079	0.069	0.060	0.054	0.048	0.043	0.039	0.035	0.032	0.029	0.027
1.100	0.303	0.288	0.275	0.217	0.176	0.146	0.122	0.104	0.090	0.078	0.069	0.061	0.054	0.049	0.044	0.040	0.036	0.033	0.031
1.200	0.341	0.324	0.308	0.244	0.198	0.164	0.138	0.117	0.101	0.088	0.078	0.069	0.061	0.055	0.050	0.045	0.041	0.038	0.034
1.300	0.378	0.360	0.343	0.272	0.220	0.182	0.153	0.130	0.113	0.098	0.086	0.076	0.068	0.061	0.055	0.050	0.046	0.042	0.038
1.400	0.416	0.396	0.377	0.300	0.243	0.201	0.169	0.144	0.124	0.108	0.095	0.084	0.075	0.067	0.061	0.055	0.050	0.046	0.042
1.500	0.454	0.433	0.413	0.328	0.266	0.220	0.185	0.158	0.136	0.118	0.104	0.092	0.082	0.074	0.067	0.061	0.055	0.050	0.046
1.600	0.493	0.470	0.448	0.357	0.290	0.240	0.201	0.172	0.148	0.129	0.114	0.101	0.090	0.081	0.073	0.066	0.060	0.055	0.050
1.700	0.532	0.507	0.484	0.387	0.314	0.260	0.218	0.186	0.160	0.140	0.123	0.109	0.097	0.087	0.079	0.071	0.065	0.060	0.055
1.800	0.570	0.545	0.521	0.417	0.339	0.281	0.236	0.201	0.173	0.151	0.133	0.118	0.105	0.094	0.085	0.077	0.070	0.064	0.059
1.900	0.609	0.583	0.558	0.448	0.365	0.302	0.254	0.216	0.186	0.162	0.143	0.126	0.113	0.102	0.092	0.083	0.076	0.069	0.064
2.000	0.647	0.621	0.595	0.480	0.391	0.324	0.272	0.232	0.200	0.174	0.153	0.136	0.121	0.109	0.098	0.089	0.081	0.074	0.068
2.200	0.722	0.695	0.668	0.545	0.445	0.369	0.310	0.264	0.228	0.198	0.174	0.155	0.138	0.124	0.112	0.101	0.093	0.085	0.078
2.400	0.791	0.765	0.738	0.611	0.502	0.417	0.350	0.299	0.257	0.224	0.197	0.175	0.156	0.140	0.126	0.115	0.104	0.096	0.088
2.600	0.851	0.828	0.804	0.677	0.561	0.467	0.393	0.335	0.289	0.251	0.221	0.196	0.175	0.157	0.141	0.128	0.117	0.107	0.098
2.800	0.901	0.882	0.861	0.741	0.621	0.519	0.437	0.373	0.321	0.280	0.246	0.218	0.194	0.175	0.157	0.143	0.130	0.119	0.110
3.000	0.940	0.925	0.908	0.802	0.682	0.573	0.483	0.412	0.356	0.310	0.272	0.241	0.215	0.193	0.174	0.158	0.144	0.132	0.121
3.200	0.966	0.956	0.944	0.856	0.741	0.628	0.532	0.454	0.391	0.341	0.300	0.266	0.237	0.213	0.192	0.174	0.159	0.145	0.133
3.400	0.983	0.977	0.969	0.902	0.798	0.684	0.582	0.497	0.429	0.374	0.328	0.291	0.260	0.233	0.210	0.191	0.174	0.159	0.144
3.600	0.992	0.989	0.984	0.938	0.850	0.740	0.633	0.542	0.468	0.408	0.358	0.317	0.283	0.254	0.229	0.208	0.190	0.173	0.159
3.800	0.997	0.995	0.993	0.964	0.895	0.793	0.685	0.589	0.509	0.443	0.390	0.345	0.308	0.276	0.249	0.226	0.206	0.189	0.173
4.000	0.999	0.998	0.997	0.981	0.931	0.843	0.737	0.636	0.551	0.480	0.422	0.374	0.333	0.299	0.270	0.245	0.223	0.204	0.188
4.500	1.000	1.000	1.000	0.997	0.984	0.939	0.857	0.758	0.661	0.578	0.508	0.450	0.402	0.361	0.325	0.295	0.269	0.246	0.226
5.000	1.000	1.000	1.000	1.000	0.997	0.986	0.945	0.869	0.775	0.683	0.602	0.534	0.476	0.427	0.386	0.350	0.319	0.292	0.268
5.500	1.000	1.000	1.000	1.000	1.000	0.998	0.987	0.950	0.879	0.790	0.702	0.624	0.557	0.500	0.451</				



(R AND A EXPRESSED IN SIGMAS)

**N= 7**

A	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.025	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.035	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002
0.040	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.045	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004
0.050	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004
0.060	0.013	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.006
0.070	0.017	0.017	0.017	0.017	0.016	0.016	0.016	0.015	0.015	0.014	0.013	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.008
0.080	0.022	0.022	0.022	0.022	0.021	0.021	0.020	0.020	0.019	0.018	0.017	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.011
0.090	0.028	0.028	0.028	0.027	0.027	0.026	0.026	0.025	0.024	0.023	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014
0.100	0.034	0.034	0.034	0.034	0.034	0.033	0.032	0.032	0.031	0.030	0.028	0.027	0.026	0.025	0.023	0.022	0.021	0.020	0.018
0.120	0.049	0.049	0.049	0.048	0.047	0.046	0.045	0.044	0.042	0.041	0.039	0.037	0.035	0.033	0.032	0.030	0.028	0.026	0.025
0.140	0.066	0.066	0.066	0.065	0.064	0.062	0.061	0.059	0.057	0.055	0.053	0.050	0.048	0.045	0.043	0.040	0.038	0.036	0.033
0.160	0.086	0.085	0.085	0.084	0.083	0.081	0.079	0.076	0.074	0.071	0.068	0.065	0.062	0.059	0.055	0.052	0.049	0.046	0.043
0.180	0.107	0.107	0.106	0.105	0.103	0.101	0.099	0.096	0.092	0.089	0.085	0.082	0.078	0.074	0.070	0.066	0.062	0.058	0.054
0.200	0.131	0.130	0.129	0.128	0.126	0.123	0.120	0.117	0.113	0.109	0.104	0.100	0.095	0.090	0.085	0.080	0.076	0.071	0.067
0.250	0.196	0.196	0.195	0.193	0.190	0.186	0.181	0.176	0.171	0.165	0.158	0.151	0.144	0.137	0.130	0.123	0.115	0.109	0.102
0.300	0.270	0.270	0.268	0.265	0.261	0.256	0.250	0.244	0.236	0.228	0.219	0.210	0.201	0.191	0.181	0.171	0.162	0.152	0.143
0.350	0.349	0.348	0.346	0.342	0.338	0.332	0.324	0.316	0.307	0.297	0.286	0.274	0.262	0.250	0.238	0.225	0.213	0.201	0.189
0.400	0.429	0.428	0.424	0.422	0.416	0.409	0.401	0.391	0.380	0.368	0.356	0.342	0.328	0.313	0.298	0.283	0.268	0.253	0.238
0.450	0.508	0.507	0.504	0.500	0.494	0.486	0.477	0.466	0.454	0.441	0.426	0.411	0.394	0.377	0.360	0.342	0.325	0.307	0.290
0.500	0.583	0.582	0.579	0.573	0.569	0.561	0.551	0.539	0.526	0.512	0.496	0.479	0.461	0.442	0.423	0.403	0.383	0.363	0.343
0.550	0.653	0.652	0.649	0.643	0.638	0.630	0.620	0.608	0.595	0.580	0.563	0.545	0.526	0.506	0.485	0.463	0.441	0.419	0.397
0.600	0.714	0.715	0.713	0.708	0.702	0.694	0.684	0.672	0.659	0.643	0.626	0.608	0.588	0.567	0.545	0.522	0.498	0.474	0.450
0.650	0.772	0.771	0.769	0.764	0.758	0.751	0.741	0.730	0.717	0.702	0.685	0.666	0.646	0.624	0.601	0.578	0.553	0.528	0.502
0.700	0.820	0.819	0.817	0.813	0.807	0.800	0.791	0.781	0.768	0.754	0.737	0.719	0.699	0.678	0.655	0.630	0.605	0.579	0.552
0.750	0.860	0.860	0.858	0.854	0.849	0.843	0.834	0.825	0.813	0.799	0.784	0.767	0.747	0.726	0.704	0.679	0.654	0.627	0.600
0.800	0.893	0.893	0.891	0.888	0.884	0.878	0.871	0.862	0.851	0.839	0.825	0.809	0.790	0.770	0.748	0.724	0.699	0.672	0.645
0.850	0.920	0.920	0.918	0.916	0.912	0.907	0.901	0.893	0.884	0.873	0.860	0.845	0.828	0.809	0.788	0.765	0.740	0.714	0.687
0.900	0.941	0.941	0.940	0.937	0.934	0.930	0.925	0.918	0.910	0.900	0.889	0.876	0.860	0.843	0.823	0.801	0.778	0.752	0.725
0.950	0.957	0.957	0.956	0.954	0.952	0.948	0.944	0.938	0.932	0.923	0.913	0.901	0.888	0.872	0.854	0.834	0.811	0.787	0.761
1.000	0.970	0.970	0.969	0.967	0.965	0.963	0.959	0.954	0.949	0.942	0.933	0.923	0.911	0.897	0.880	0.862	0.841	0.818	0.793
1.100	0.985	0.985	0.985	0.984	0.983	0.981	0.979	0.976	0.972	0.968	0.962	0.954	0.946	0.935	0.922	0.907	0.890	0.870	0.848
1.200	0.994	0.993	0.993	0.993	0.992	0.991	0.990	0.988	0.986	0.983	0.979	0.974	0.968	0.960	0.951	0.939	0.926	0.910	0.891
1.300	0.997	0.997	0.997	0.997	0.997	0.996	0.995	0.994	0.993	0.991	0.989	0.986	0.982	0.977	0.970	0.962	0.952	0.939	0.925
1.400	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.997	0.996	0.995	0.993	0.990	0.987	0.983	0.977	0.970	0.960	0.949
1.500	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.993	0.990	0.987	0.981	0.975	0.967
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.996	0.995	0.992	0.989	0.985	0.979
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996	0.994	0.991	0.987
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.			



(R AND A EXPRESSED IN SIGMAS)

**N= 7**

	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
0.035	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.040	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.045	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.050	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.060	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.070	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002
0.080	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003
0.090	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004
0.100	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005
0.120	0.023	0.022	0.020	0.019	0.018	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007
0.140	0.031	0.029	0.027	0.025	0.024	0.022	0.021	0.019	0.018	0.017	0.015	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010
0.160	0.041	0.038	0.035	0.033	0.031	0.029	0.027	0.025	0.023	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.014	0.013
0.180	0.051	0.048	0.045	0.042	0.039	0.036	0.034	0.032	0.030	0.028	0.026	0.024	0.023	0.022	0.020	0.019	0.018	0.017	0.016
0.200	0.062	0.058	0.055	0.051	0.048	0.044	0.042	0.039	0.036	0.034	0.032	0.030	0.028	0.026	0.025	0.023	0.022	0.021	0.020
0.250	0.096	0.089	0.084	0.078	0.073	0.068	0.064	0.060	0.056	0.052	0.049	0.046	0.043	0.041	0.038	0.036	0.034	0.032	0.031
0.300	0.134	0.126	0.117	0.110	0.103	0.096	0.090	0.084	0.079	0.074	0.069	0.065	0.061	0.057	0.054	0.051	0.048	0.046	0.043
0.350	0.177	0.166	0.156	0.146	0.136	0.127	0.119	0.112	0.104	0.098	0.092	0.086	0.081	0.076	0.072	0.068	0.064	0.061	0.057
0.400	0.224	0.210	0.197	0.185	0.173	0.162	0.151	0.142	0.133	0.124	0.117	0.110	0.103	0.097	0.091	0.086	0.082	0.077	0.073
0.450	0.273	0.257	0.241	0.226	0.212	0.198	0.186	0.174	0.163	0.153	0.144	0.135	0.127	0.119	0.113	0.106	0.100	0.095	0.090
0.500	0.324	0.305	0.287	0.269	0.252	0.237	0.222	0.208	0.195	0.183	0.172	0.162	0.152	0.143	0.135	0.127	0.120	0.114	0.109
0.550	0.375	0.354	0.333	0.313	0.294	0.276	0.259	0.243	0.228	0.214	0.201	0.187	0.178	0.168	0.158	0.149	0.141	0.133	0.126
0.600	0.426	0.403	0.380	0.358	0.337	0.316	0.297	0.279	0.262	0.246	0.231	0.218	0.205	0.193	0.182	0.172	0.162	0.154	0.146
0.650	0.476	0.451	0.426	0.402	0.379	0.357	0.335	0.313	0.296	0.278	0.262	0.246	0.232	0.219	0.206	0.195	0.184	0.174	0.165
0.700	0.525	0.498	0.474	0.446	0.421	0.397	0.373	0.351	0.331	0.311	0.293	0.276	0.260	0.245	0.231	0.218	0.206	0.195	0.185
0.750	0.572	0.544	0.516	0.489	0.462	0.436	0.411	0.387	0.365	0.343	0.323	0.305	0.287	0.271	0.256	0.242	0.228	0.216	0.205
0.800	0.616	0.588	0.559	0.530	0.502	0.475	0.448	0.423	0.399	0.376	0.354	0.334	0.315	0.297	0.281	0.265	0.251	0.238	0.225
0.850	0.658	0.629	0.600	0.570	0.541	0.512	0.485	0.458	0.432	0.408	0.385	0.363	0.342	0.323	0.305	0.289	0.273	0.259	0.245
0.900	0.697	0.668	0.638	0.608	0.578	0.549	0.520	0.492	0.465	0.439	0.415	0.391	0.370	0.349	0.330	0.312	0.295	0.280	0.265
0.950	0.733	0.704	0.675	0.644	0.614	0.584	0.554	0.525	0.497	0.470	0.444	0.420	0.397	0.373	0.355	0.336	0.318	0.301	0.286
1.000	0.766	0.736	0.709	0.679	0.648	0.618	0.587	0.557	0.528	0.500	0.473	0.448	0.424	0.401	0.379	0.359	0.340	0.322	0.306
1.100	0.824	0.798	0.770	0.741	0.711	0.681	0.650	0.619	0.589	0.559	0.530	0.503	0.476	0.451	0.427	0.405	0.384	0.364	0.346
1.200	0.871	0.846	0.822	0.795	0.767	0.737	0.707	0.676	0.645	0.615	0.585	0.556	0.528	0.501	0.475	0.451	0.428	0.404	0.386
1.300	0.907	0.888	0.866	0.842	0.816	0.788	0.759	0.729	0.698	0.668	0.637	0.607	0.578	0.550	0.522	0.496	0.472	0.448	0.426
1.400	0.936	0.920	0.901	0.880	0.857	0.832	0.805	0.776	0.747	0.717	0.687	0.656	0.626	0.597	0.569	0.542	0.515	0.490	0.467
1.500	0.956	0.944	0.929	0.912	0.892	0.870	0.845	0.819	0.791	0.763	0.733	0.703	0.673	0.643	0.614	0.586	0.559	0.532	0.507
1.600	0.971	0.962	0.950	0.936	0.920	0.901	0.880	0.857	0.831	0.804	0.776	0.747	0.718	0.688	0.659	0.630	0.601	0.574	0.548
1.700	0.982	0.975	0.967	0.956	0.943	0.927	0.909	0.889	0.864	0.842	0.816	0.788	0.760	0.731	0.701	0.672	0.644	0.616	0.588
1.800	0.989	0.984	0.978	0.970	0.960	0.948	0.933	0.916	0.896	0.875	0.851	0.825	0.799	0.771	0.742	0.713	0.685	0.656	0.628
1.900	0.994	0.990	0.986	0.980	0.973	0.963	0.952	0.938	0.922	0.903	0.882	0.859	0.834	0.808	0.781	0.753	0.724	0.696	0.668
2.000	0.996	0.994	0.992	0.988	0.982	0.975	0.966	0.955	0.942	0.927	0.909	0.888	0.866	0.842	0.816	0.790	0.762	0.734	0.707
2.200	0.999	0.998	0.997	0.996	0.993	0.990	0.985	0.979	0.971	0.961	0.949	0.935	0.918	0.899	0.878	0.856	0.831	0.806	0.779
2.400	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.991	0.987	0.982	0.975	0.966	0.955	0.941	0.926	0.908	0.888	0.867	0.844
2.600	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.993	0.989	0.984	0.978	0.969	0.959	0.947	0.932	0.916	0.897
2.800	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996	0.994	0.990	0.986	0.980	0.972	0.963	0.951	0.938
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.991	0.987	0.982	0.975	0.966
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.995	0.992	0.988
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.993
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N = 7

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.080	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.090	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.007	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.140	0.009	0.009	0.008	0.007	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.160	0.012	0.012	0.011	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.180	0.015	0.015	0.014	0.011	0.009	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.200	0.019	0.018	0.017	0.013	0.011	0.009	0.008	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.250	0.029	0.028	0.026	0.021	0.017	0.014	0.012	0.010	0.009	0.007	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003
0.300	0.041	0.039	0.037	0.029	0.024	0.020	0.016	0.014	0.012	0.011	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.004	0.004
0.350	0.054	0.052	0.049	0.039	0.031	0.026	0.022	0.019	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.007	0.006	0.005
0.400	0.069	0.066	0.063	0.050	0.040	0.033	0.028	0.024	0.020	0.018	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.008	0.007
0.450	0.085	0.081	0.077	0.061	0.049	0.041	0.034	0.029	0.025	0.022	0.019	0.017	0.015	0.014	0.012	0.011	0.010	0.009	0.009
0.500	0.102	0.097	0.092	0.073	0.059	0.049	0.041	0.035	0.030	0.026	0.023	0.020	0.018	0.016	0.015	0.013	0.012	0.011	0.010
0.550	0.120	0.114	0.108	0.086	0.069	0.057	0.048	0.041	0.035	0.031	0.027	0.024	0.021	0.019	0.017	0.016	0.014	0.013	0.012
0.600	0.138	0.131	0.125	0.099	0.080	0.066	0.056	0.047	0.041	0.036	0.031	0.028	0.025	0.022	0.020	0.018	0.017	0.015	0.014
0.650	0.157	0.149	0.142	0.112	0.091	0.075	0.063	0.054	0.046	0.040	0.035	0.031	0.028	0.025	0.023	0.021	0.019	0.017	0.016
0.700	0.176	0.167	0.159	0.125	0.102	0.084	0.071	0.060	0.052	0.045	0.040	0.035	0.031	0.028	0.025	0.023	0.021	0.019	0.018
0.750	0.195	0.185	0.176	0.139	0.113	0.093	0.078	0.067	0.058	0.050	0.044	0.039	0.035	0.031	0.028	0.026	0.023	0.021	0.020
0.800	0.214	0.203	0.193	0.153	0.124	0.102	0.086	0.073	0.063	0.055	0.048	0.043	0.038	0.034	0.031	0.028	0.026	0.023	0.022
0.850	0.233	0.221	0.210	0.167	0.135	0.112	0.094	0.080	0.069	0.060	0.053	0.047	0.042	0.037	0.034	0.031	0.028	0.026	0.023
0.900	0.252	0.239	0.228	0.180	0.146	0.121	0.102	0.087	0.075	0.065	0.057	0.051	0.045	0.041	0.037	0.033	0.030	0.028	0.025
0.950	0.271	0.258	0.245	0.194	0.157	0.130	0.109	0.093	0.080	0.070	0.062	0.054	0.049	0.044	0.039	0.036	0.033	0.030	0.027
1.000	0.290	0.276	0.263	0.208	0.168	0.139	0.117	0.100	0.086	0.075	0.066	0.058	0.052	0.047	0.042	0.038	0.035	0.032	0.029
1.100	0.322	0.312	0.297	0.236	0.191	0.158	0.133	0.113	0.098	0.085	0.075	0.066	0.059	0.053	0.048	0.043	0.039	0.036	0.033
1.200	0.367	0.349	0.332	0.263	0.214	0.177	0.148	0.126	0.109	0.095	0.084	0.074	0.066	0.059	0.053	0.049	0.044	0.040	0.037
1.300	0.406	0.386	0.368	0.292	0.237	0.196	0.164	0.140	0.121	0.105	0.093	0.082	0.073	0.066	0.059	0.054	0.049	0.045	0.041
1.400	0.444	0.423	0.403	0.320	0.260	0.215	0.181	0.154	0.133	0.116	0.102	0.090	0.080	0.072	0.065	0.059	0.054	0.049	0.045
1.500	0.483	0.461	0.439	0.350	0.284	0.235	0.197	0.168	0.145	0.126	0.111	0.098	0.088	0.079	0.071	0.064	0.059	0.054	0.049
1.600	0.523	0.499	0.476	0.380	0.308	0.255	0.214	0.182	0.157	0.137	0.121	0.107	0.095	0.086	0.077	0.070	0.064	0.058	0.054
1.700	0.562	0.537	0.513	0.410	0.333	0.275	0.231	0.197	0.170	0.148	0.130	0.116	0.103	0.093	0.084	0.076	0.069	0.063	0.058
1.800	0.601	0.575	0.550	0.441	0.359	0.297	0.249	0.212	0.183	0.160	0.140	0.124	0.111	0.100	0.090	0.082	0.074	0.068	0.063
1.900	0.640	0.613	0.587	0.473	0.385	0.319	0.268	0.228	0.197	0.171	0.151	0.133	0.119	0.107	0.097	0.088	0.080	0.073	0.067
2.000	0.679	0.651	0.625	0.505	0.412	0.341	0.286	0.244	0.210	0.183	0.161	0.143	0.127	0.114	0.104	0.094	0.085	0.078	0.072
2.200	0.752	0.725	0.698	0.571	0.468	0.387	0.326	0.277	0.239	0.208	0.183	0.162	0.145	0.130	0.117	0.106	0.097	0.089	0.082
2.400	0.819	0.794	0.768	0.638	0.526	0.436	0.367	0.313	0.270	0.235	0.206	0.183	0.163	0.146	0.132	0.120	0.109	0.100	0.092
2.600	0.877	0.854	0.831	0.705	0.585	0.487	0.410	0.350	0.301	0.263	0.231	0.204	0.182	0.164	0.148	0.134	0.122	0.112	0.103
2.800	0.922	0.904	0.885	0.768	0.646	0.540	0.455	0.388	0.335	0.292	0.256	0.227	0.203	0.182	0.164	0.149	0.136	0.124	0.114
3.000	0.955	0.942	0.927	0.827	0.707	0.595	0.503	0.429	0.370	0.322	0.283	0.251	0.224	0.201	0.181	0.164	0.150	0.137	0.126
3.200	0.977	0.968	0.958	0.879	0.766	0.651	0.552	0.471	0.406	0.354	0.311	0.276	0.245	0.221	0.195	0.181	0.165	0.151	0.138
3.400	0.989	0.985	0.979	0.921	0.822	0.708	0.603	0.515	0.445	0.387	0.343	0.302	0.269	0.241	0.218	0.198	0.180	0.165	0.151
3.600	0.996	0.993	0.990	0.953	0.872	0.763	0.655	0.561	0.484	0.422	0.371	0.329	0.293	0.263	0.237	0.215	0.196	0.180	0.165
3.800	0.999	0.998	0.996	0.974	0.914	0.816	0.707	0.608	0.526	0.458	0.403	0.357	0.318	0.286	0.258	0.234	0.213	0.195	0.179
4.000	1.000	0.999	0.999	0.988	0.946	0.864	0.759	0.656	0.568	0.496	0.436	0.386	0.344	0.309	0.279	0.253	0.230	0.211	0.194
4.500	1.000	1.000	1.000	0.998	0.989	0.952	0.877	0.778	0.680	0.595	0.523	0.464	0.414	0.371	0.335	0.304	0.277	0.253	0.233
5.000	1.000	1.000	1.000	1.000	0.999	0.990	0.957	0.887	0.795	0.701	0.618	0.548	0.489	0.439	0.396	0.359	0.327	0.300	0.275
5.500	1.000	1.000	1.000	1.000	1.000	0.999	0.991	0.961	0.896	0.809	0.719	0.639	0.571	0.512	0.462</				



## IR AND A EXPRESSED IN SIGMAS

**N= 8**

A \ B	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
0.020	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.025	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.030	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.035	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002
0.040	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003
0.045	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004
0.050	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005
0.060	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.013	0.012	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.008
0.070	0.019	0.019	0.019	0.019	0.019	0.018	0.018	0.017	0.017	0.016	0.015	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010
0.080	0.025	0.025	0.025	0.025	0.024	0.024	0.023	0.022	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.013
0.090	0.032	0.032	0.032	0.031	0.031	0.030	0.029	0.028	0.027	0.026	0.025	0.024	0.023	0.022	0.020	0.019	0.018	0.017	0.016
0.100	0.039	0.039	0.039	0.038	0.038	0.037	0.036	0.035	0.034	0.032	0.031	0.030	0.028	0.027	0.025	0.024	0.022	0.021	0.020
0.120	0.054	0.054	0.053	0.053	0.053	0.053	0.051	0.050	0.048	0.046	0.044	0.042	0.040	0.038	0.036	0.034	0.032	0.030	0.028
0.140	0.074	0.074	0.073	0.073	0.073	0.071	0.069	0.067	0.065	0.062	0.060	0.057	0.054	0.052	0.049	0.046	0.043	0.041	0.038
0.160	0.097	0.097	0.096	0.095	0.094	0.092	0.089	0.087	0.084	0.081	0.077	0.074	0.070	0.067	0.063	0.060	0.056	0.053	0.049
0.180	0.121	0.121	0.120	0.119	0.117	0.115	0.112	0.109	0.105	0.101	0.097	0.093	0.088	0.084	0.079	0.075	0.070	0.064	0.062
0.200	0.148	0.148	0.147	0.145	0.143	0.140	0.136	0.132	0.128	0.123	0.118	0.113	0.108	0.102	0.097	0.091	0.086	0.081	0.076
0.250	0.221	0.221	0.219	0.217	0.214	0.209	0.204	0.199	0.193	0.186	0.178	0.171	0.163	0.155	0.147	0.139	0.131	0.123	0.115
0.300	0.302	0.302	0.300	0.297	0.292	0.287	0.281	0.273	0.265	0.256	0.246	0.236	0.226	0.215	0.204	0.193	0.182	0.172	0.161
0.350	0.37	0.387	0.384	0.381	0.376	0.369	0.361	0.352	0.342	0.331	0.319	0.307	0.293	0.280	0.266	0.252	0.239	0.225	0.212
0.400	0.472	0.472	0.469	0.465	0.459	0.452	0.443	0.433	0.421	0.408	0.395	0.380	0.364	0.348	0.332	0.315	0.299	0.282	0.266
0.450	0.555	0.554	0.552	0.547	0.541	0.533	0.523	0.512	0.499	0.485	0.470	0.453	0.436	0.418	0.399	0.380	0.360	0.341	0.322
0.500	0.632	0.631	0.628	0.624	0.617	0.609	0.599	0.587	0.574	0.559	0.543	0.525	0.506	0.486	0.465	0.444	0.423	0.401	0.380
0.550	0.702	0.701	0.698	0.694	0.687	0.679	0.669	0.657	0.644	0.628	0.611	0.593	0.573	0.552	0.530	0.507	0.484	0.460	0.436
0.600	0.763	0.762	0.760	0.755	0.749	0.741	0.732	0.720	0.707	0.692	0.675	0.656	0.634	0.614	0.591	0.567	0.543	0.518	0.492
0.650	0.815	0.815	0.812	0.808	0.803	0.796	0.787	0.776	0.763	0.748	0.732	0.714	0.694	0.672	0.649	0.624	0.599	0.573	0.546
0.700	0.859	0.858	0.856	0.853	0.848	0.841	0.833	0.823	0.812	0.798	0.782	0.765	0.746	0.724	0.701	0.677	0.651	0.624	0.597
0.750	0.894	0.894	0.892	0.889	0.885	0.879	0.872	0.863	0.853	0.840	0.825	0.810	0.791	0.771	0.749	0.725	0.699	0.672	0.645
0.800	0.923	0.922	0.921	0.918	0.914	0.910	0.903	0.896	0.887	0.876	0.863	0.849	0.831	0.812	0.791	0.768	0.743	0.717	0.689
0.850	0.944	0.944	0.943	0.941	0.938	0.934	0.928	0.922	0.914	0.905	0.893	0.880	0.865	0.847	0.828	0.806	0.782	0.757	0.730
0.900	0.961	0.961	0.960	0.958	0.955	0.952	0.947	0.943	0.936	0.928	0.918	0.907	0.893	0.878	0.860	0.840	0.817	0.793	0.767
0.950	0.973	0.973	0.972	0.971	0.969	0.966	0.963	0.959	0.953	0.946	0.938	0.928	0.917	0.903	0.887	0.868	0.848	0.825	0.800
1.000	0.982	0.982	0.981	0.980	0.979	0.977	0.974	0.971	0.966	0.961	0.954	0.946	0.936	0.924	0.910	0.893	0.874	0.853	0.830
1.100	0.992	0.992	0.992	0.991	0.990	0.989	0.988	0.986	0.983	0.980	0.976	0.970	0.963	0.955	0.944	0.931	0.916	0.899	0.879
1.200	0.997	0.997	0.997	0.996	0.996	0.995	0.995	0.994	0.992	0.990	0.988	0.984	0.980	0.974	0.967	0.958	0.946	0.933	0.917
1.300	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.997	0.997	0.996	0.994	0.992	0.990	0.986	0.981	0.975	0.967	0.957	0.945
1.400	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.993	0.990	0.984	0.980	0.973	0.964
1.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.998	0.996	0.995	0.992	0.989	0.984	0.978
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996	0.994	0.991	0.987
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000					



(R AND A EXPRESSED IN SIGMAS)

**M = 0**

A	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.040	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.045	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.050	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
0.060	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.000
0.070	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.080	0.012	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004
0.090	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005
0.100	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006
0.120	0.026	0.025	0.023	0.021	0.020	0.019	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.009
0.140	0.036	0.033	0.031	0.029	0.027	0.025	0.024	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.011
0.160	0.046	0.043	0.040	0.038	0.035	0.033	0.031	0.029	0.027	0.025	0.023	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.015
0.180	0.058	0.054	0.051	0.047	0.044	0.041	0.039	0.036	0.034	0.032	0.030	0.028	0.026	0.024	0.023	0.022	0.021	0.019	0.018
0.200	0.071	0.066	0.062	0.058	0.054	0.051	0.047	0.044	0.041	0.039	0.036	0.034	0.032	0.030	0.028	0.027	0.025	0.024	0.023
0.250	0.108	0.101	0.095	0.089	0.083	0.077	0.072	0.068	0.063	0.059	0.056	0.052	0.049	0.046	0.043	0.041	0.039	0.037	0.035
0.300	0.151	0.142	0.133	0.124	0.116	0.109	0.101	0.095	0.089	0.083	0.078	0.073	0.069	0.065	0.061	0.058	0.054	0.051	0.049
0.350	0.199	0.187	0.175	0.164	0.153	0.143	0.134	0.126	0.118	0.110	0.103	0.097	0.091	0.086	0.081	0.076	0.072	0.068	0.065
0.400	0.250	0.235	0.221	0.207	0.194	0.181	0.170	0.159	0.149	0.140	0.131	0.123	0.116	0.109	0.103	0.097	0.092	0.087	0.082
0.450	0.304	0.286	0.269	0.252	0.236	0.221	0.208	0.194	0.182	0.171	0.161	0.151	0.142	0.134	0.126	0.119	0.112	0.106	0.101
0.500	0.358	0.338	0.318	0.299	0.280	0.263	0.247	0.231	0.217	0.204	0.191	0.180	0.169	0.159	0.150	0.142	0.134	0.127	0.120
0.550	0.413	0.390	0.368	0.346	0.325	0.306	0.287	0.269	0.253	0.237	0.223	0.210	0.197	0.186	0.175	0.165	0.156	0.148	0.140
0.600	0.467	0.442	0.417	0.393	0.370	0.348	0.327	0.307	0.289	0.271	0.255	0.240	0.226	0.213	0.201	0.190	0.179	0.170	0.161
0.650	0.519	0.492	0.466	0.440	0.415	0.391	0.368	0.346	0.325	0.306	0.289	0.271	0.255	0.240	0.227	0.214	0.202	0.192	0.182
0.700	0.569	0.541	0.513	0.485	0.456	0.432	0.407	0.384	0.361	0.340	0.320	0.301	0.284	0.268	0.253	0.239	0.226	0.214	0.203
0.750	0.616	0.587	0.558	0.529	0.501	0.473	0.447	0.421	0.397	0.374	0.352	0.332	0.313	0.295	0.279	0.263	0.249	0.236	0.224
0.800	0.660	0.631	0.601	0.571	0.542	0.513	0.485	0.458	0.432	0.407	0.384	0.362	0.342	0.323	0.305	0.288	0.272	0.258	0.245
0.850	0.701	0.672	0.641	0.611	0.581	0.551	0.522	0.493	0.466	0.440	0.415	0.392	0.370	0.350	0.330	0.312	0.296	0.280	0.266
0.900	0.739	0.710	0.680	0.649	0.618	0.586	0.557	0.528	0.500	0.472	0.446	0.422	0.398	0.376	0.356	0.337	0.319	0.302	0.286
0.950	0.773	0.745	0.715	0.685	0.654	0.623	0.592	0.562	0.532	0.504	0.477	0.451	0.426	0.403	0.381	0.361	0.342	0.324	0.307
1.000	0.804	0.777	0.748	0.718	0.687	0.656	0.625	0.594	0.564	0.534	0.506	0.479	0.453	0.429	0.406	0.385	0.364	0.346	0.328
1.100	0.857	0.833	0.806	0.778	0.748	0.718	0.686	0.655	0.624	0.593	0.564	0.535	0.507	0.481	0.456	0.432	0.410	0.389	0.369
1.200	0.898	0.877	0.854	0.829	0.801	0.772	0.742	0.713	0.680	0.647	0.618	0.588	0.559	0.531	0.504	0.479	0.454	0.432	0.410
1.300	0.930	0.913	0.893	0.871	0.846	0.820	0.792	0.763	0.732	0.701	0.670	0.639	0.609	0.580	0.552	0.525	0.499	0.474	0.451
1.400	0.953	0.940	0.924	0.905	0.884	0.861	0.835	0.806	0.779	0.749	0.719	0.688	0.658	0.628	0.599	0.570	0.543	0.517	0.492
1.500	0.970	0.960	0.947	0.932	0.915	0.895	0.872	0.848	0.821	0.793	0.764	0.734	0.704	0.674	0.644	0.615	0.587	0.560	0.533
1.600	0.981	0.974	0.965	0.953	0.939	0.923	0.904	0.882	0.858	0.833	0.805	0.777	0.748	0.718	0.688	0.659	0.630	0.602	0.575
1.700	0.989	0.984	0.977	0.969	0.958	0.945	0.929	0.911	0.890	0.868	0.843	0.816	0.788	0.760	0.730	0.701	0.672	0.643	0.615
1.800	0.994	0.990	0.986	0.980	0.972	0.962	0.949	0.935	0.917	0.898	0.875	0.851	0.826	0.798	0.770	0.742	0.713	0.684	0.656
1.900	0.996	0.994	0.991	0.987	0.982	0.974	0.965	0.953	0.939	0.923	0.904	0.883	0.859	0.834	0.808	0.780	0.752	0.723	0.695
2.000	0.998	0.997	0.995	0.992	0.989	0.983	0.977	0.968	0.957	0.943	0.928	0.909	0.889	0.866	0.842	0.816	0.789	0.761	0.733
2.200	1.000	0.999	0.999	0.998	0.996	0.994	0.991	0.986	0.980	0.972	0.962	0.950	0.936	0.919	0.899	0.878	0.855	0.830	0.804
2.400	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992	0.988	0.983	0.976	0.967	0.955	0.942	0.926	0.908	0.888	0.866
2.600	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.996	0.993	0.990	0.985	0.978	0.970	0.960	0.947	0.932
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.991	0.986	0.980	0.973	0.963	0.952
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992	0.988	0.982	0.975
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.995	0.993	0.989
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.996
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.070	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N = 8

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.080	0.004	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000
0.090	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
0.100	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.008	0.007	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.140	0.011	0.010	0.010	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.160	0.014	0.013	0.013	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001
0.180	0.017	0.017	0.016	0.012	0.010	0.008	0.007	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.200	0.021	0.020	0.019	0.015	0.012	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002
0.250	0.033	0.031	0.030	0.023	0.019	0.016	0.013	0.011	0.010	0.008	0.007	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003
0.300	0.046	0.044	0.042	0.033	0.027	0.022	0.019	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005
0.350	0.061	0.058	0.055	0.044	0.035	0.029	0.025	0.021	0.018	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.007	0.006
0.400	0.078	0.074	0.070	0.056	0.045	0.037	0.031	0.027	0.023	0.020	0.018	0.016	0.014	0.012	0.011	0.010	0.009	0.009	0.008
0.450	0.095	0.091	0.086	0.068	0.055	0.046	0.038	0.033	0.028	0.025	0.022	0.019	0.017	0.015	0.014	0.013	0.011	0.010	0.010
0.500	0.114	0.108	0.103	0.081	0.066	0.055	0.046	0.039	0.034	0.029	0.026	0.023	0.020	0.018	0.016	0.015	0.014	0.012	0.011
0.550	0.133	0.126	0.120	0.095	0.077	0.064	0.053	0.046	0.039	0.034	0.030	0.027	0.024	0.021	0.019	0.017	0.016	0.015	0.013
0.600	0.153	0.145	0.138	0.109	0.088	0.073	0.061	0.052	0.045	0.039	0.035	0.031	0.027	0.024	0.022	0.020	0.018	0.017	0.015
0.650	0.172	0.164	0.156	0.123	0.100	0.083	0.069	0.059	0.051	0.044	0.039	0.035	0.031	0.028	0.025	0.023	0.021	0.019	0.017
0.700	0.192	0.183	0.174	0.137	0.111	0.092	0.077	0.066	0.057	0.050	0.044	0.039	0.034	0.031	0.028	0.025	0.023	0.021	0.019
0.750	0.212	0.202	0.192	0.152	0.123	0.102	0.085	0.073	0.063	0.055	0.048	0.043	0.038	0.034	0.031	0.028	0.025	0.023	0.021
0.800	0.232	0.221	0.210	0.166	0.135	0.111	0.094	0.080	0.069	0.060	0.053	0.047	0.042	0.037	0.034	0.031	0.028	0.025	0.023
0.850	0.252	0.240	0.228	0.180	0.146	0.121	0.102	0.087	0.075	0.065	0.057	0.051	0.045	0.041	0.037	0.033	0.030	0.028	0.025
0.900	0.272	0.258	0.246	0.195	0.158	0.130	0.109	0.093	0.081	0.070	0.062	0.055	0.049	0.044	0.039	0.036	0.033	0.030	0.027
0.950	0.292	0.277	0.264	0.209	0.169	0.140	0.118	0.100	0.086	0.075	0.066	0.059	0.052	0.047	0.042	0.038	0.035	0.032	0.029
1.000	0.311	0.296	0.282	0.223	0.181	0.149	0.126	0.107	0.092	0.080	0.071	0.063	0.056	0.050	0.045	0.041	0.037	0.034	0.031
1.100	0.351	0.333	0.317	0.251	0.204	0.168	0.142	0.121	0.104	0.091	0.080	0.071	0.063	0.057	0.051	0.046	0.042	0.039	0.035
1.200	0.390	0.371	0.353	0.280	0.227	0.188	0.158	0.134	0.116	0.101	0.089	0.079	0.070	0.063	0.057	0.052	0.047	0.043	0.039
1.300	0.429	0.409	0.389	0.309	0.251	0.207	0.174	0.148	0.128	0.112	0.098	0.087	0.077	0.070	0.063	0.057	0.052	0.047	0.044
1.400	0.469	0.447	0.426	0.338	0.274	0.227	0.191	0.162	0.140	0.122	0.107	0.095	0.085	0.076	0.069	0.062	0.057	0.052	0.048
1.500	0.509	0.485	0.463	0.368	0.299	0.247	0.208	0.177	0.153	0.133	0.117	0.104	0.092	0.083	0.075	0.068	0.062	0.057	0.052
1.600	0.549	0.524	0.500	0.399	0.324	0.268	0.225	0.192	0.165	0.144	0.127	0.112	0.100	0.090	0.081	0.074	0.067	0.061	0.056
1.700	0.588	0.562	0.537	0.430	0.349	0.289	0.243	0.207	0.178	0.155	0.137	0.121	0.108	0.097	0.088	0.080	0.072	0.066	0.061
1.800	0.628	0.601	0.575	0.462	0.376	0.311	0.261	0.222	0.192	0.167	0.147	0.130	0.116	0.105	0.094	0.086	0.078	0.071	0.066
1.900	0.667	0.639	0.613	0.494	0.402	0.333	0.280	0.238	0.206	0.179	0.157	0.139	0.124	0.112	0.101	0.092	0.084	0.076	0.070
2.000	0.705	0.678	0.650	0.527	0.430	0.356	0.299	0.255	0.220	0.191	0.168	0.149	0.133	0.119	0.108	0.098	0.089	0.082	0.075
2.200	0.778	0.751	0.724	0.594	0.487	0.403	0.339	0.280	0.249	0.217	0.191	0.169	0.151	0.135	0.122	0.111	0.101	0.092	0.085
2.400	0.843	0.818	0.792	0.661	0.546	0.453	0.381	0.323	0.280	0.244	0.214	0.190	0.169	0.152	0.137	0.125	0.114	0.104	0.095
2.600	0.896	0.876	0.853	0.728	0.606	0.505	0.425	0.362	0.312	0.272	0.239	0.212	0.189	0.170	0.153	0.139	0.127	0.116	0.107
2.800	0.938	0.922	0.904	0.791	0.668	0.559	0.471	0.402	0.346	0.302	0.265	0.235	0.210	0.188	0.170	0.154	0.140	0.128	0.118
3.000	0.966	0.955	0.942	0.848	0.729	0.615	0.519	0.443	0.382	0.333	0.293	0.259	0.231	0.207	0.187	0.170	0.155	0.142	0.130
3.200	0.984	0.977	0.969	0.897	0.787	0.671	0.569	0.486	0.419	0.365	0.321	0.284	0.254	0.228	0.205	0.186	0.170	0.155	0.143
3.400	0.993	0.990	0.985	0.936	0.842	0.728	0.621	0.531	0.458	0.399	0.351	0.311	0.277	0.249	0.224	0.204	0.186	0.170	0.156
3.600	0.998	0.996	0.994	0.964	0.889	0.783	0.673	0.577	0.498	0.434	0.382	0.338	0.302	0.271	0.244	0.222	0.202	0.185	0.170
3.800	0.999	0.999	0.998	0.982	0.928	0.834	0.726	0.625	0.540	0.471	0.414	0.367	0.327	0.293	0.265	0.240	0.219	0.200	0.184
4.000	1.000	1.000	0.999	0.991	0.958	0.881	0.777	0.674	0.583	0.509	0.447	0.396	0.353	0.317	0.286	0.260	0.237	0.216	0.199
4.500	1.000	1.000	1.000	0.999	0.993	0.963	0.892	0.795	0.697	0.609	0.536	0.475	0.424	0.380	0.343	0.311	0.284	0.259	0.238
5.000	1.000	1.000	1.000	1.000	0.999	0.994	0.967	0.902	0.811	0.717	0.632	0.560	0.500	0.449	0.405	0.367	0.335	0.306	0.281
5.500	1.000	1.000	1.000	1.000	1.000	0.999	0.994	0.970	0.910	0.824	0.734	0.653	0.582	0.523	0.472				



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY M WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

11. 9

A \ B	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.020	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.025	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.030	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.035	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.040	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004
0.045	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.005
0.050	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.006	0.006	0.006
0.060	0.016	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.009
0.070	0.022	0.022	0.022	0.021	0.021	0.021	0.020	0.019	0.019	0.018	0.017	0.016	0.016	0.015	0.014	0.013	0.012	0.012	0.011
0.080	0.028	0.028	0.028	0.028	0.027	0.027	0.026	0.025	0.024	0.023	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014
0.090	0.036	0.036	0.036	0.035	0.035	0.034	0.034	0.033	0.032	0.031	0.030	0.028	0.027	0.026	0.024	0.023	0.022	0.020	0.019
0.100	0.044	0.044	0.044	0.044	0.043	0.042	0.041	0.040	0.039	0.038	0.036	0.035	0.033	0.032	0.030	0.028	0.027	0.025	0.024
0.120	0.063	0.063	0.062	0.061	0.060	0.059	0.058	0.056	0.054	0.052	0.050	0.047	0.045	0.043	0.040	0.038	0.036	0.034	0.032
0.140	0.084	0.084	0.084	0.083	0.081	0.080	0.078	0.075	0.073	0.070	0.067	0.064	0.061	0.058	0.055	0.051	0.048	0.045	0.043
0.160	0.109	0.109	0.108	0.107	0.105	0.103	0.100	0.097	0.094	0.090	0.087	0.083	0.079	0.075	0.071	0.067	0.063	0.059	0.055
0.180	0.136	0.135	0.134	0.133	0.131	0.128	0.125	0.121	0.117	0.113	0.108	0.104	0.099	0.094	0.089	0.084	0.079	0.074	0.069
0.200	0.165	0.164	0.163	0.161	0.159	0.156	0.152	0.148	0.143	0.138	0.132	0.126	0.120	0.114	0.108	0.102	0.096	0.090	0.085
0.250	0.245	0.245	0.243	0.240	0.237	0.232	0.227	0.221	0.214	0.206	0.198	0.190	0.181	0.172	0.163	0.154	0.146	0.137	0.129
0.300	0.333	0.332	0.330	0.327	0.322	0.317	0.310	0.302	0.293	0.283	0.272	0.261	0.250	0.238	0.226	0.214	0.202	0.190	0.179
0.350	0.424	0.423	0.421	0.417	0.411	0.404	0.396	0.386	0.376	0.364	0.351	0.337	0.323	0.309	0.294	0.279	0.264	0.249	0.234
0.400	0.513	0.512	0.510	0.505	0.499	0.492	0.482	0.472	0.459	0.446	0.431	0.415	0.399	0.382	0.364	0.346	0.328	0.310	0.293
0.450	0.598	0.597	0.594	0.590	0.583	0.575	0.565	0.554	0.541	0.526	0.510	0.493	0.474	0.455	0.435	0.415	0.394	0.374	0.353
0.500	0.675	0.674	0.672	0.667	0.661	0.652	0.642	0.631	0.617	0.602	0.585	0.567	0.547	0.526	0.505	0.482	0.459	0.437	0.414
0.550	0.743	0.743	0.740	0.736	0.730	0.722	0.712	0.700	0.687	0.671	0.654	0.636	0.615	0.594	0.571	0.547	0.523	0.498	0.473
0.600	0.802	0.801	0.799	0.795	0.789	0.782	0.772	0.761	0.748	0.734	0.717	0.699	0.678	0.656	0.633	0.609	0.583	0.557	0.531
0.650	0.850	0.850	0.848	0.844	0.839	0.832	0.824	0.814	0.802	0.788	0.772	0.754	0.735	0.713	0.690	0.665	0.640	0.613	0.585
0.700	0.890	0.889	0.887	0.884	0.880	0.874	0.867	0.857	0.847	0.834	0.820	0.803	0.784	0.764	0.741	0.717	0.691	0.664	0.636
0.750	0.920	0.920	0.918	0.916	0.912	0.907	0.901	0.893	0.884	0.873	0.859	0.844	0.827	0.808	0.787	0.763	0.738	0.712	0.683
0.800	0.944	0.943	0.942	0.940	0.937	0.933	0.928	0.921	0.913	0.904	0.892	0.879	0.864	0.846	0.826	0.804	0.780	0.754	0.727
0.850	0.961	0.961	0.960	0.958	0.956	0.953	0.948	0.943	0.937	0.929	0.919	0.907	0.894	0.878	0.860	0.840	0.817	0.792	0.766
0.900	0.974	0.974	0.973	0.972	0.970	0.967	0.964	0.960	0.954	0.948	0.940	0.930	0.918	0.904	0.888	0.870	0.849	0.826	0.801
0.950	0.983	0.983	0.982	0.981	0.980	0.978	0.975	0.972	0.968	0.963	0.956	0.948	0.938	0.926	0.912	0.896	0.877	0.855	0.832
1.000	0.989	0.989	0.988	0.988	0.987	0.985	0.983	0.981	0.978	0.974	0.968	0.962	0.954	0.944	0.931	0.917	0.900	0.881	0.859
1.100	0.996	0.996	0.995	0.995	0.995	0.994	0.993	0.992	0.990	0.988	0.984	0.980	0.975	0.968	0.960	0.949	0.936	0.921	0.903
1.200	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.994	0.993	0.990	0.987	0.983	0.977	0.970	0.961	0.950	0.936
1.300	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.994	0.991	0.988	0.983	0.977	0.969	0.959
1.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.996	0.994	0.991	0.987	0.982	0.975
1.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.993	0.990	0.985
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.998	0.996	0.992
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				



## (R AND A EXPRESSED IN SIGMAS)

**N= 9**

A \ B	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.01C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.02C	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0.030	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.04C	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.045	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.05C	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.06C	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002
0.07C	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003
0.08C	0.013	0.012	0.012	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004
0.09C	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005
0.10C	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007
0.12C	0.029	0.028	0.026	0.024	0.022	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009
0.14C	0.040	0.037	0.035	0.033	0.030	0.028	0.026	0.025	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.013
0.16C	0.052	0.048	0.045	0.042	0.039	0.037	0.034	0.032	0.030	0.028	0.026	0.025	0.023	0.022	0.021	0.019	0.018	0.017	0.016
0.18C	0.065	0.061	0.057	0.053	0.049	0.046	0.043	0.040	0.038	0.035	0.033	0.031	0.029	0.027	0.027	0.024	0.023	0.022	0.021
0.20C	0.079	0.074	0.069	0.067	0.061	0.057	0.053	0.049	0.046	0.043	0.041	0.038	0.036	0.034	0.032	0.030	0.028	0.027	0.025
0.25C	0.121	0.113	0.106	0.099	0.092	0.086	0.081	0.075	0.066	0.066	0.062	0.058	0.055	0.051	0.048	0.046	0.043	0.041	0.039
0.30C	0.168	0.158	0.148	0.139	0.129	0.121	0.113	0.106	0.099	0.093	0.087	0.082	0.077	0.072	0.068	0.064	0.061	0.057	0.054
0.35C	0.220	0.207	0.194	0.182	0.170	0.159	0.149	0.139	0.130	0.122	0.115	0.108	0.101	0.095	0.090	0.085	0.080	0.076	0.072
0.40C	0.276	0.259	0.243	0.228	0.214	0.200	0.188	0.176	0.165	0.154	0.145	0.136	0.128	0.120	0.113	0.107	0.101	0.096	0.091
0.45C	0.333	0.314	0.295	0.277	0.260	0.244	0.228	0.214	0.201	0.189	0.177	0.166	0.156	0.147	0.139	0.131	0.124	0.117	0.111
0.50C	0.391	0.369	0.347	0.327	0.307	0.288	0.270	0.254	0.238	0.223	0.210	0.197	0.185	0.175	0.165	0.155	0.147	0.139	0.132
0.55C	0.448	0.424	0.400	0.377	0.354	0.333	0.313	0.294	0.276	0.259	0.243	0.229	0.215	0.203	0.191	0.181	0.171	0.162	0.153
0.60C	0.504	0.477	0.451	0.426	0.401	0.378	0.355	0.334	0.314	0.295	0.277	0.261	0.246	0.232	0.218	0.206	0.195	0.185	0.175
0.65C	0.557	0.529	0.501	0.474	0.447	0.422	0.397	0.374	0.352	0.331	0.311	0.293	0.276	0.260	0.246	0.232	0.219	0.208	0.197
0.70C	0.607	0.578	0.549	0.521	0.492	0.465	0.438	0.413	0.389	0.367	0.345	0.325	0.306	0.289	0.273	0.258	0.244	0.231	0.219
0.75C	0.654	0.625	0.595	0.565	0.535	0.507	0.479	0.452	0.426	0.402	0.378	0.357	0.336	0.317	0.300	0.283	0.268	0.254	0.241
0.80C	0.698	0.668	0.638	0.607	0.577	0.547	0.517	0.489	0.462	0.436	0.411	0.388	0.366	0.346	0.327	0.309	0.292	0.277	0.262
0.85C	0.738	0.708	0.678	0.647	0.616	0.585	0.555	0.525	0.497	0.469	0.443	0.419	0.395	0.373	0.353	0.334	0.316	0.299	0.284
0.90C	0.774	0.745	0.715	0.684	0.653	0.622	0.591	0.560	0.530	0.502	0.475	0.449	0.424	0.401	0.379	0.359	0.340	0.322	0.305
0.95C	0.806	0.778	0.749	0.719	0.688	0.656	0.625	0.594	0.563	0.534	0.505	0.478	0.452	0.428	0.405	0.383	0.363	0.344	0.327
1.00C	0.835	0.809	0.781	0.751	0.720	0.689	0.657	0.626	0.595	0.564	0.535	0.507	0.480	0.454	0.430	0.408	0.386	0.366	0.348
1.10C	0.883	0.860	0.835	0.808	0.779	0.749	0.718	0.686	0.655	0.623	0.593	0.563	0.534	0.507	0.481	0.456	0.432	0.410	0.390
1.20C	0.920	0.901	0.879	0.855	0.829	0.801	0.772	0.741	0.710	0.678	0.647	0.616	0.586	0.557	0.530	0.503	0.478	0.454	0.431
1.30C	0.947	0.932	0.914	0.894	0.871	0.846	0.819	0.790	0.760	0.729	0.698	0.667	0.637	0.607	0.578	0.550	0.523	0.497	0.473
1.40C	0.966	0.955	0.941	0.924	0.905	0.884	0.859	0.833	0.805	0.776	0.746	0.716	0.685	0.654	0.625	0.595	0.567	0.541	0.515
1.50C	0.979	0.971	0.960	0.948	0.932	0.914	0.894	0.871	0.846	0.818	0.790	0.760	0.730	0.700	0.670	0.640	0.611	0.583	0.556
1.60C	0.987	0.982	0.974	0.965	0.953	0.939	0.922	0.902	0.880	0.856	0.830	0.802	0.773	0.744	0.714	0.684	0.655	0.626	0.598
1.70C	0.993	0.989	0.984	0.977	0.969	0.958	0.944	0.928	0.909	0.888	0.865	0.839	0.812	0.784	0.755	0.726	0.696	0.667	0.639
1.80C	0.996	0.994	0.991	0.986	0.980	0.972	0.962	0.949	0.933	0.916	0.895	0.873	0.848	0.822	0.794	0.766	0.737	0.708	0.679
1.90C	0.998	0.997	0.995	0.992	0.988	0.982	0.974	0.965	0.953	0.938	0.921	0.901	0.880	0.856	0.830	0.803	0.775	0.747	0.718
2.00C	0.999	0.998	0.997	0.995	0.993	0.989	0.984	0.976	0.967	0.956	0.942	0.926	0.907	0.886	0.863	0.838	0.811	0.784	0.756
2.20C	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.991	0.986	0.980	0.972	0.961	0.949	0.934	0.916	0.896	0.874	0.851	0.826
2.40C	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992	0.988	0.982	0.975	0.966	0.954	0.940	0.924	0.905	0.884
2.60C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.997	0.996	0.993	0.990	0.984	0.978	0.969	0.958	0.930
2.80C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.991	0.986	0.980	0.972
3.00C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992	0.987	0.982
3.20C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.995
3.40C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.997
3.60C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
3.80C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.00C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.50C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.00C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.50C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.00C	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N = 9

A/R	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
0.080	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000
0.090	0.005	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.006	0.006	0.006	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.009	0.008	0.008	0.004	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.140	0.012	0.011	0.011	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.160	0.016	0.015	0.014	0.011	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.180	0.020	0.019	0.018	0.014	0.011	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002
0.200	0.024	0.023	0.022	0.017	0.014	0.011	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002
0.250	0.037	0.035	0.033	0.026	0.021	0.018	0.015	0.013	0.011	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.004	0.004	0.004
0.300	0.052	0.049	0.047	0.037	0.030	0.025	0.021	0.018	0.015	0.013	0.012	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005
0.350	0.068	0.065	0.061	0.049	0.039	0.033	0.027	0.023	0.020	0.018	0.015	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.007
0.400	0.086	0.082	0.078	0.061	0.050	0.041	0.035	0.029	0.025	0.022	0.019	0.017	0.015	0.014	0.012	0.011	0.010	0.009	0.009
0.450	0.105	0.100	0.095	0.075	0.061	0.050	0.042	0.036	0.031	0.027	0.024	0.021	0.019	0.017	0.015	0.014	0.013	0.012	0.011
0.500	0.125	0.119	0.113	0.089	0.072	0.060	0.050	0.043	0.037	0.032	0.028	0.025	0.022	0.020	0.018	0.016	0.015	0.014	0.013
0.550	0.145	0.138	0.131	0.104	0.084	0.070	0.058	0.050	0.043	0.037	0.033	0.029	0.026	0.023	0.021	0.019	0.017	0.016	0.015
0.600	0.166	0.158	0.150	0.119	0.096	0.079	0.067	0.057	0.049	0.043	0.038	0.033	0.030	0.027	0.024	0.022	0.020	0.018	0.017
0.650	0.187	0.177	0.169	0.133	0.108	0.089	0.075	0.064	0.055	0.048	0.042	0.037	0.033	0.030	0.027	0.025	0.022	0.020	0.019
0.700	0.208	0.197	0.188	0.148	0.120	0.099	0.084	0.071	0.061	0.053	0.047	0.042	0.037	0.033	0.030	0.027	0.025	0.023	0.021
0.750	0.228	0.217	0.206	0.163	0.132	0.109	0.092	0.078	0.068	0.059	0.052	0.046	0.041	0.037	0.033	0.030	0.027	0.025	0.023
0.800	0.249	0.237	0.225	0.178	0.144	0.119	0.100	0.085	0.074	0.064	0.056	0.050	0.045	0.040	0.036	0.033	0.030	0.027	0.025
0.850	0.270	0.256	0.244	0.193	0.156	0.129	0.108	0.073	0.080	0.070	0.061	0.054	0.048	0.043	0.039	0.035	0.032	0.030	0.027
0.900	0.290	0.276	0.262	0.207	0.168	0.139	0.117	0.100	0.086	0.075	0.066	0.058	0.052	0.047	0.042	0.038	0.035	0.032	0.029
0.950	0.310	0.295	0.280	0.222	0.180	0.149	0.125	0.107	0.092	0.080	0.070	0.062	0.056	0.050	0.045	0.041	0.037	0.034	0.031
1.000	0.330	0.314	0.299	0.237	0.192	0.158	0.133	0.114	0.098	0.085	0.075	0.066	0.059	0.053	0.048	0.044	0.040	0.036	0.033
1.100	0.370	0.352	0.335	0.266	0.215	0.178	0.150	0.127	0.110	0.096	0.084	0.075	0.067	0.060	0.054	0.049	0.045	0.041	0.037
1.200	0.410	0.390	0.372	0.295	0.239	0.198	0.166	0.141	0.122	0.106	0.094	0.083	0.074	0.066	0.060	0.054	0.049	0.045	0.042
1.300	0.450	0.429	0.409	0.324	0.263	0.217	0.183	0.156	0.134	0.117	0.103	0.091	0.081	0.073	0.066	0.060	0.054	0.050	0.046
1.400	0.490	0.467	0.446	0.354	0.287	0.238	0.200	0.170	0.147	0.128	0.113	0.100	0.089	0.080	0.072	0.065	0.060	0.054	0.050
1.500	0.531	0.506	0.483	0.385	0.312	0.258	0.217	0.185	0.159	0.139	0.122	0.108	0.097	0.087	0.078	0.071	0.065	0.059	0.054
1.600	0.571	0.545	0.521	0.416	0.338	0.279	0.235	0.200	0.172	0.150	0.132	0.117	0.105	0.094	0.085	0.077	0.070	0.064	0.059
1.700	0.611	0.584	0.559	0.448	0.364	0.301	0.253	0.215	0.186	0.162	0.142	0.126	0.113	0.101	0.091	0.083	0.075	0.069	0.063
1.800	0.651	0.623	0.597	0.480	0.390	0.323	0.271	0.231	0.199	0.174	0.153	0.135	0.121	0.109	0.098	0.089	0.081	0.074	0.068
1.900	0.690	0.662	0.635	0.513	0.418	0.346	0.291	0.248	0.213	0.186	0.163	0.145	0.129	0.116	0.105	0.095	0.087	0.079	0.073
2.000	0.728	0.700	0.672	0.546	0.446	0.369	0.310	0.264	0.228	0.198	0.174	0.155	0.138	0.124	0.112	0.102	0.093	0.085	0.078
2.200	0.799	0.773	0.745	0.614	0.503	0.417	0.351	0.299	0.258	0.225	0.197	0.175	0.156	0.140	0.126	0.115	0.105	0.096	0.088
2.400	0.862	0.838	0.813	0.682	0.563	0.468	0.393	0.335	0.289	0.252	0.221	0.196	0.175	0.157	0.142	0.129	0.117	0.107	0.099
2.600	0.912	0.893	0.871	0.748	0.624	0.521	0.438	0.374	0.322	0.281	0.247	0.218	0.195	0.175	0.158	0.143	0.130	0.119	0.110
2.800	0.950	0.935	0.919	0.810	0.686	0.575	0.485	0.414	0.357	0.311	0.273	0.242	0.216	0.194	0.175	0.159	0.144	0.132	0.121
3.000	0.974	0.965	0.954	0.866	0.747	0.631	0.534	0.455	0.393	0.342	0.301	0.266	0.238	0.213	0.192	0.175	0.159	0.146	0.134
3.200	0.989	0.983	0.976	0.912	0.805	0.688	0.584	0.499	0.430	0.375	0.330	0.292	0.260	0.234	0.211	0.191	0.174	0.160	0.147
3.400	0.996	0.993	0.990	0.947	0.858	0.745	0.636	0.544	0.470	0.409	0.360	0.319	0.284	0.255	0.230	0.209	0.190	0.174	0.160
3.600	0.999	0.998	0.996	0.972	0.904	0.800	0.689	0.591	0.511	0.445	0.391	0.346	0.309	0.277	0.250	0.227	0.207	0.189	0.174
3.800	1.000	0.999	0.999	0.987	0.940	0.850	0.742	0.639	0.553	0.482	0.424	0.375	0.335	0.300	0.271	0.246	0.224	0.205	0.188
4.000	1.000	1.000	1.000	0.994	0.968	0.895	0.793	0.688	0.597	0.520	0.457	0.405	0.361	0.324	0.293	0.265	0.242	0.221	0.203
4.500	1.000	1.000	1.000	1.000	0.995	0.970	0.905	0.810	0.711	0.622	0.547	0.485	0.432	0.388	0.350	0.318	0.289	0.265	0.243
5.000	1.000	1.000	1.000	1.000	1.000	0.995	0.974	0.914	0.825	0.730	0.644	0.571	0.510	0.457	0.413	0.374	0.341	0.312	0.287
5.500	1.000	1.000	1.000	1.000	1.000	1.000	0.995	0.976	0.921	0.837	0.747	0.664	0.593	0.532	0.480				



(R AND A EXPRESSED IN SIGMAS)

**N=10**

A	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.020	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.025	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.030	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002
0.035	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003
0.040	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004
0.045	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005
0.050	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.006
0.060	0.018	0.018	0.018	0.017	0.017	0.017	0.016	0.016	0.015	0.015	0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.009	0.009
0.070	0.024	0.024	0.024	0.024	0.023	0.023	0.022	0.021	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.015	0.014	0.013	0.012
0.080	0.031	0.031	0.031	0.031	0.030	0.030	0.029	0.028	0.027	0.026	0.025	0.024	0.023	0.021	0.020	0.019	0.018	0.017	0.016
0.090	0.040	0.040	0.039	0.039	0.038	0.037	0.036	0.035	0.034	0.033	0.031	0.030	0.028	0.027	0.025	0.024	0.023	0.021	0.020
0.100	0.049	0.049	0.048	0.048	0.047	0.046	0.045	0.043	0.042	0.040	0.039	0.037	0.035	0.033	0.031	0.030	0.028	0.026	0.024
0.120	0.069	0.069	0.069	0.068	0.067	0.065	0.064	0.062	0.060	0.057	0.055	0.053	0.050	0.047	0.045	0.042	0.040	0.037	0.035
0.140	0.093	0.093	0.092	0.091	0.090	0.088	0.086	0.083	0.080	0.077	0.074	0.071	0.067	0.064	0.060	0.057	0.054	0.050	0.047
0.160	0.120	0.120	0.119	0.118	0.116	0.113	0.111	0.107	0.104	0.100	0.096	0.092	0.087	0.083	0.078	0.074	0.069	0.065	0.061
0.180	0.149	0.149	0.148	0.147	0.144	0.141	0.138	0.134	0.129	0.125	0.120	0.114	0.109	0.103	0.098	0.092	0.087	0.082	0.077
0.200	0.181	0.181	0.180	0.178	0.175	0.171	0.167	0.163	0.157	0.152	0.145	0.139	0.133	0.126	0.119	0.113	0.106	0.100	0.094
0.250	0.268	0.268	0.266	0.263	0.259	0.255	0.249	0.242	0.234	0.226	0.218	0.209	0.199	0.189	0.180	0.170	0.160	0.151	0.142
0.300	0.362	0.362	0.360	0.356	0.351	0.345	0.337	0.329	0.319	0.309	0.298	0.286	0.273	0.260	0.247	0.235	0.222	0.209	0.197
0.350	0.458	0.457	0.455	0.451	0.445	0.438	0.429	0.419	0.407	0.395	0.381	0.367	0.352	0.336	0.320	0.304	0.288	0.272	0.256
0.400	0.550	0.550	0.547	0.543	0.536	0.528	0.519	0.508	0.495	0.481	0.465	0.449	0.432	0.413	0.395	0.376	0.357	0.337	0.319
0.450	0.636	0.636	0.633	0.628	0.622	0.614	0.604	0.592	0.579	0.563	0.547	0.529	0.510	0.490	0.469	0.448	0.426	0.404	0.382
0.500	0.713	0.713	0.710	0.705	0.699	0.691	0.681	0.669	0.656	0.640	0.623	0.605	0.584	0.563	0.541	0.517	0.494	0.470	0.445
0.550	0.779	0.779	0.776	0.772	0.766	0.758	0.749	0.738	0.724	0.709	0.692	0.674	0.653	0.631	0.608	0.584	0.559	0.533	0.507
0.600	0.835	0.834	0.832	0.828	0.823	0.816	0.807	0.796	0.784	0.770	0.754	0.735	0.715	0.694	0.670	0.646	0.620	0.593	0.565
0.650	0.879	0.878	0.876	0.873	0.869	0.862	0.855	0.845	0.834	0.821	0.804	0.789	0.770	0.749	0.726	0.702	0.676	0.649	0.620
0.700	0.914	0.913	0.912	0.909	0.905	0.900	0.893	0.885	0.875	0.864	0.850	0.835	0.817	0.797	0.776	0.752	0.726	0.699	0.671
0.750	0.940	0.940	0.938	0.936	0.933	0.929	0.923	0.916	0.908	0.898	0.886	0.873	0.857	0.839	0.819	0.796	0.772	0.745	0.717
0.800	0.959	0.959	0.958	0.956	0.954	0.950	0.946	0.941	0.934	0.925	0.915	0.904	0.890	0.873	0.855	0.834	0.811	0.786	0.759
0.850	0.973	0.973	0.972	0.971	0.969	0.966	0.963	0.959	0.953	0.946	0.938	0.928	0.916	0.902	0.884	0.867	0.846	0.822	0.796
0.900	0.983	0.982	0.982	0.981	0.980	0.978	0.975	0.972	0.967	0.962	0.955	0.947	0.937	0.925	0.911	0.894	0.875	0.853	0.829
0.950	0.989	0.989	0.989	0.988	0.987	0.985	0.984	0.981	0.978	0.974	0.968	0.962	0.954	0.944	0.931	0.917	0.900	0.880	0.858
1.000	0.993	0.993	0.993	0.992	0.992	0.991	0.989	0.988	0.985	0.982	0.978	0.973	0.966	0.958	0.948	0.935	0.920	0.903	0.883
1.100	0.998	0.998	0.997	0.997	0.997	0.997	0.996	0.995	0.994	0.992	0.990	0.987	0.983	0.978	0.971	0.962	0.951	0.938	0.922
1.200	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.994	0.992	0.989	0.984	0.979	0.971	0.962
1.300	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.992	0.989	0.984	0.978
1.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.998	0.998	0.996	0.994	0.991	0.987
1.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.997	0.996	0.993	0.990
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.995
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0								



(R AND A EXPRESSED IN SIGMAS)

**N=10**

A	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
0.030	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.040	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.045	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
0.050	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.060	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003
0.070	0.011	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004
0.080	0.015	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.005
0.090	0.019	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006
0.100	0.023	0.021	0.020	0.019	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007
0.120	0.033	0.031	0.029	0.027	0.025	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010
0.140	0.044	0.041	0.039	0.036	0.034	0.031	0.029	0.027	0.026	0.024	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014
0.160	0.057	0.054	0.050	0.047	0.044	0.041	0.038	0.036	0.033	0.031	0.029	0.027	0.026	0.024	0.023	0.021	0.020	0.019	0.018
0.180	0.072	0.067	0.063	0.059	0.055	0.051	0.048	0.045	0.042	0.039	0.037	0.034	0.032	0.030	0.029	0.027	0.025	0.024	0.023
0.200	0.088	0.082	0.077	0.072	0.067	0.063	0.058	0.055	0.051	0.048	0.045	0.042	0.040	0.037	0.035	0.033	0.031	0.030	0.028
0.250	0.133	0.124	0.116	0.109	0.102	0.095	0.089	0.083	0.078	0.073	0.068	0.064	0.060	0.057	0.053	0.050	0.048	0.045	0.043
0.300	0.185	0.173	0.162	0.152	0.142	0.133	0.124	0.116	0.109	0.102	0.095	0.090	0.084	0.079	0.075	0.071	0.067	0.063	0.060
0.350	0.241	0.226	0.212	0.199	0.186	0.174	0.163	0.153	0.143	0.134	0.126	0.118	0.111	0.104	0.098	0.093	0.088	0.083	0.079
0.400	0.300	0.282	0.265	0.249	0.233	0.218	0.205	0.192	0.180	0.169	0.158	0.149	0.140	0.131	0.124	0.117	0.110	0.105	0.099
0.450	0.361	0.340	0.320	0.301	0.282	0.265	0.248	0.233	0.218	0.205	0.192	0.181	0.170	0.160	0.151	0.142	0.134	0.127	0.121
0.500	0.422	0.398	0.375	0.353	0.332	0.312	0.292	0.274	0.258	0.242	0.227	0.214	0.201	0.189	0.178	0.168	0.159	0.151	0.143
0.550	0.481	0.455	0.430	0.405	0.381	0.359	0.337	0.317	0.297	0.279	0.263	0.247	0.233	0.219	0.207	0.195	0.184	0.175	0.165
0.600	0.538	0.510	0.483	0.456	0.430	0.405	0.381	0.359	0.337	0.317	0.298	0.281	0.264	0.249	0.235	0.222	0.210	0.199	0.188
0.650	0.592	0.563	0.534	0.505	0.478	0.451	0.425	0.400	0.376	0.354	0.334	0.314	0.296	0.279	0.263	0.249	0.235	0.223	0.211
0.700	0.642	0.612	0.582	0.553	0.523	0.495	0.467	0.440	0.415	0.391	0.368	0.347	0.327	0.309	0.291	0.275	0.260	0.247	0.234
0.750	0.688	0.658	0.628	0.597	0.567	0.537	0.508	0.479	0.452	0.427	0.402	0.379	0.358	0.338	0.319	0.302	0.285	0.270	0.256
0.800	0.731	0.701	0.670	0.639	0.608	0.577	0.547	0.517	0.489	0.462	0.436	0.411	0.388	0.367	0.346	0.328	0.310	0.294	0.279
0.850	0.769	0.740	0.710	0.678	0.647	0.615	0.584	0.554	0.524	0.496	0.468	0.442	0.418	0.395	0.373	0.353	0.334	0.317	0.301
0.900	0.803	0.775	0.746	0.715	0.683	0.652	0.620	0.589	0.558	0.528	0.500	0.473	0.447	0.423	0.400	0.379	0.359	0.340	0.322
0.950	0.834	0.807	0.778	0.748	0.717	0.686	0.654	0.622	0.591	0.560	0.531	0.503	0.476	0.450	0.426	0.404	0.382	0.363	0.344
1.000	0.860	0.835	0.808	0.779	0.749	0.718	0.686	0.654	0.622	0.591	0.561	0.532	0.504	0.477	0.452	0.428	0.406	0.385	0.366
1.100	0.904	0.883	0.859	0.833	0.805	0.776	0.745	0.713	0.681	0.650	0.618	0.588	0.558	0.530	0.503	0.477	0.453	0.430	0.408
1.200	0.936	0.915	0.891	0.87	0.852	0.825	0.797	0.767	0.736	0.704	0.673	0.641	0.611	0.581	0.552	0.525	0.499	0.474	0.451
1.300	0.959	0.946	0.930	0.912	0.891	0.867	0.842	0.814	0.784	0.754	0.723	0.692	0.661	0.630	0.600	0.572	0.544	0.518	0.493
1.400	0.975	0.965	0.954	0.939	0.922	0.902	0.880	0.855	0.829	0.799	0.770	0.739	0.708	0.678	0.647	0.618	0.589	0.561	0.535
1.500	0.985	0.979	0.970	0.959	0.946	0.930	0.911	0.890	0.866	0.840	0.812	0.783	0.753	0.723	0.693	0.663	0.633	0.605	0.577
1.600	0.992	0.987	0.981	0.974	0.964	0.951	0.936	0.918	0.898	0.875	0.850	0.823	0.795	0.766	0.736	0.706	0.676	0.647	0.619
1.700	0.995	0.993	0.989	0.984	0.977	0.968	0.956	0.942	0.925	0.905	0.883	0.859	0.833	0.805	0.777	0.747	0.718	0.689	0.660
1.800	0.998	0.996	0.994	0.990	0.986	0.979	0.971	0.960	0.946	0.930	0.911	0.890	0.867	0.841	0.815	0.787	0.758	0.729	0.700
1.900	0.999	0.998	0.997	0.995	0.992	0.987	0.981	0.973	0.963	0.950	0.935	0.917	0.896	0.874	0.849	0.823	0.795	0.767	0.739
2.000	0.999	0.999	0.998	0.997	0.995	0.992	0.988	0.983	0.975	0.966	0.953	0.939	0.922	0.902	0.880	0.856	0.830	0.804	0.776
2.200	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.990	0.985	0.979	0.970	0.959	0.946	0.930	0.911	0.891	0.868	0.844
2.400	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992	0.987	0.981	0.973	0.963	0.951	0.936	0.919	0.900
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.993	0.989	0.983	0.976	0.967	0.955	0.942
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.990	0.985	0.978	0.970
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.994	0.991	0.986
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N=10

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
0.080	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.090	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.007	0.007	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.010	0.009	0.009	0.007	0.006	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.140	0.013	0.013	0.012	0.009	0.008	0.006	0.005	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.160	0.017	0.016	0.016	0.012	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
0.180	0.022	0.021	0.020	0.015	0.013	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002
0.200	0.027	0.025	0.024	0.019	0.015	0.013	0.011	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003
0.250	0.040	0.038	0.037	0.029	0.023	0.019	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004
0.300	0.057	0.054	0.051	0.040	0.033	0.027	0.023	0.019	0.017	0.015	0.013	0.011	0.010	0.009	0.008	0.007	0.007	0.006	0.006
0.350	0.075	0.071	0.067	0.053	0.043	0.036	0.030	0.026	0.022	0.019	0.017	0.015	0.013	0.012	0.011	0.010	0.009	0.008	0.007
0.400	0.094	0.089	0.085	0.067	0.054	0.045	0.038	0.032	0.028	0.024	0.021	0.019	0.017	0.015	0.014	0.012	0.011	0.010	0.009
0.450	0.114	0.109	0.103	0.082	0.066	0.055	0.046	0.039	0.034	0.029	0.026	0.023	0.020	0.018	0.017	0.015	0.014	0.013	0.011
0.500	0.135	0.129	0.122	0.097	0.078	0.065	0.054	0.046	0.040	0.035	0.031	0.027	0.024	0.022	0.020	0.018	0.016	0.015	0.014
0.550	0.157	0.149	0.142	0.112	0.091	0.075	0.063	0.054	0.046	0.040	0.035	0.031	0.028	0.025	0.023	0.021	0.019	0.017	0.016
0.600	0.179	0.170	0.161	0.128	0.103	0.085	0.072	0.061	0.053	0.046	0.040	0.036	0.032	0.029	0.026	0.023	0.021	0.020	0.018
0.650	0.200	0.190	0.181	0.143	0.116	0.096	0.081	0.069	0.059	0.052	0.045	0.040	0.036	0.032	0.029	0.026	0.024	0.022	0.020
0.700	0.222	0.211	0.200	0.159	0.128	0.106	0.089	0.076	0.066	0.057	0.050	0.044	0.040	0.036	0.032	0.029	0.027	0.024	0.022
0.750	0.243	0.231	0.220	0.174	0.141	0.116	0.098	0.083	0.072	0.063	0.055	0.049	0.044	0.039	0.035	0.032	0.029	0.027	0.024
0.800	0.264	0.251	0.239	0.189	0.153	0.127	0.106	0.091	0.078	0.068	0.060	0.053	0.047	0.042	0.038	0.035	0.032	0.029	0.027
0.850	0.285	0.271	0.258	0.204	0.165	0.137	0.115	0.098	0.084	0.074	0.065	0.057	0.051	0.046	0.041	0.038	0.034	0.031	0.029
0.900	0.306	0.291	0.277	0.219	0.178	0.147	0.123	0.105	0.091	0.079	0.069	0.062	0.055	0.049	0.044	0.040	0.037	0.034	0.031
0.950	0.327	0.311	0.296	0.234	0.190	0.157	0.132	0.112	0.097	0.084	0.074	0.066	0.059	0.053	0.047	0.043	0.039	0.036	0.033
1.000	0.347	0.330	0.314	0.249	0.202	0.167	0.140	0.119	0.103	0.090	0.079	0.070	0.062	0.056	0.050	0.044	0.042	0.038	0.035
1.100	0.388	0.369	0.351	0.278	0.226	0.187	0.157	0.134	0.115	0.100	0.088	0.078	0.070	0.063	0.056	0.051	0.047	0.043	0.039
1.200	0.429	0.408	0.388	0.308	0.250	0.206	0.173	0.148	0.128	0.111	0.098	0.087	0.077	0.069	0.063	0.057	0.052	0.047	0.043
1.300	0.469	0.447	0.426	0.338	0.274	0.227	0.190	0.162	0.140	0.122	0.107	0.095	0.085	0.076	0.069	0.062	0.057	0.052	0.048
1.400	0.510	0.486	0.463	0.369	0.299	0.247	0.208	0.177	0.153	0.133	0.117	0.104	0.093	0.083	0.075	0.068	0.062	0.057	0.052
1.500	0.550	0.525	0.501	0.400	0.324	0.268	0.225	0.192	0.166	0.144	0.127	0.113	0.100	0.090	0.081	0.074	0.067	0.061	0.056
1.600	0.591	0.565	0.539	0.431	0.350	0.290	0.243	0.207	0.179	0.156	0.137	0.121	0.108	0.097	0.088	0.080	0.073	0.066	0.061
1.700	0.631	0.604	0.578	0.463	0.377	0.311	0.262	0.223	0.192	0.168	0.147	0.131	0.116	0.105	0.095	0.086	0.078	0.072	0.066
1.800	0.671	0.643	0.616	0.496	0.404	0.334	0.281	0.239	0.206	0.180	0.158	0.140	0.125	0.112	0.101	0.092	0.084	0.077	0.070
1.900	0.710	0.682	0.654	0.529	0.431	0.357	0.300	0.256	0.220	0.192	0.169	0.150	0.134	0.120	0.108	0.098	0.090	0.082	0.075
2.000	0.748	0.720	0.692	0.563	0.460	0.381	0.320	0.273	0.235	0.205	0.180	0.159	0.142	0.128	0.115	0.105	0.096	0.088	0.080
2.200	0.818	0.791	0.764	0.631	0.518	0.430	0.361	0.308	0.265	0.231	0.203	0.180	0.161	0.144	0.130	0.118	0.108	0.098	0.090
2.400	0.878	0.855	0.830	0.699	0.579	0.481	0.405	0.345	0.297	0.259	0.228	0.202	0.180	0.161	0.146	0.132	0.121	0.110	0.101
2.600	0.925	0.907	0.887	0.765	0.641	0.534	0.450	0.383	0.331	0.288	0.253	0.224	0.200	0.180	0.162	0.147	0.134	0.123	0.113
2.800	0.959	0.946	0.931	0.827	0.703	0.590	0.497	0.424	0.366	0.319	0.280	0.248	0.221	0.199	0.179	0.163	0.148	0.136	0.124
3.000	0.980	0.972	0.962	0.880	0.764	0.646	0.547	0.466	0.402	0.350	0.308	0.273	0.243	0.218	0.197	0.179	0.163	0.149	0.137
3.200	0.992	0.988	0.982	0.924	0.821	0.704	0.598	0.510	0.440	0.384	0.337	0.299	0.266	0.239	0.216	0.196	0.178	0.163	0.150
3.400	0.997	0.995	0.993	0.956	0.873	0.760	0.650	0.556	0.480	0.418	0.368	0.326	0.290	0.261	0.235	0.213	0.194	0.178	0.163
3.600	0.999	0.999	0.997	0.978	0.916	0.814	0.703	0.604	0.521	0.454	0.399	0.354	0.315	0.283	0.256	0.232	0.211	0.193	0.177
3.800	1.000	1.000	0.999	0.990	0.949	0.864	0.756	0.652	0.564	0.492	0.432	0.383	0.341	0.306	0.277	0.251	0.229	0.209	0.192
4.000	1.000	1.000	1.000	0.995	0.973	0.907	0.807	0.702	0.608	0.530	0.466	0.413	0.368	0.331	0.298	0.271	0.247	0.226	0.207
4.500	1.000	1.000	1.000	1.000	0.996	0.976	0.916	0.823	0.723	0.633	0.557	0.493	0.440	0.395	0.357	0.323	0.295	0.270	0.248
5.000	1.000	1.000	1.000	1.000	1.000	0.996	0.979	0.924	0.837	0.742	0.655	0.581	0.518	0.465	0.420	0.381	0.347	0.317	0.291
5.500	1.000	1.000	1.000	1.000	1.000	1.000	0.997	0.981	0.930	0.848	0.758	0.674	0.602	0.540	0.488				



**N=11**

60



(R AND A EXPRESSED IN SIGNALS)

**№ 11**

A	N	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.040	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.045	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.050	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002
0.060	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003
0.070	0.012	0.012	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004
0.080	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005
0.090	0.020	0.019	0.018	0.017	0.015	0.014	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006
0.100	0.025	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008
0.120	0.036	0.034	0.031	0.029	0.027	0.025	0.024	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.011
0.140	0.048	0.045	0.042	0.040	0.037	0.034	0.032	0.030	0.028	0.026	0.025	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015
0.160	0.063	0.059	0.055	0.051	0.048	0.045	0.042	0.039	0.036	0.034	0.032	0.030	0.028	0.027	0.025	0.024	0.022	0.021	0.020
0.180	0.079	0.074	0.069	0.064	0.060	0.056	0.052	0.049	0.046	0.043	0.040	0.038	0.035	0.033	0.031	0.030	0.028	0.026	0.025
0.200	0.096	0.090	0.084	0.078	0.073	0.068	0.064	0.060	0.056	0.052	0.049	0.046	0.043	0.041	0.038	0.036	0.034	0.032	0.031
0.250	0.145	0.136	0.127	0.119	0.111	0.104	0.097	0.091	0.085	0.080	0.075	0.070	0.066	0.062	0.058	0.055	0.052	0.049	0.047
0.300	0.201	0.189	0.176	0.165	0.154	0.144	0.135	0.126	0.118	0.111	0.104	0.098	0.092	0.086	0.081	0.077	0.073	0.069	0.065
0.350	0.261	0.245	0.230	0.215	0.202	0.189	0.177	0.166	0.155	0.145	0.136	0.128	0.120	0.113	0.107	0.101	0.095	0.090	0.085
0.400	0.324	0.305	0.286	0.269	0.252	0.236	0.221	0.207	0.194	0.182	0.171	0.161	0.151	0.142	0.134	0.126	0.119	0.113	0.107
0.450	0.387	0.365	0.344	0.323	0.303	0.285	0.267	0.250	0.235	0.220	0.207	0.195	0.183	0.172	0.162	0.153	0.145	0.137	0.130
0.500	0.450	0.425	0.401	0.378	0.355	0.334	0.314	0.294	0.276	0.259	0.244	0.229	0.216	0.203	0.192	0.181	0.171	0.162	0.153
0.550	0.511	0.484	0.458	0.432	0.407	0.383	0.360	0.338	0.318	0.299	0.281	0.264	0.249	0.234	0.221	0.209	0.197	0.187	0.177
0.600	0.569	0.540	0.512	0.484	0.457	0.431	0.406	0.382	0.359	0.338	0.318	0.299	0.282	0.265	0.250	0.237	0.224	0.212	0.201
0.650	0.623	0.593	0.564	0.534	0.505	0.477	0.450	0.424	0.399	0.376	0.354	0.333	0.314	0.296	0.280	0.264	0.250	0.237	0.224
0.700	0.673	0.643	0.612	0.582	0.551	0.522	0.493	0.465	0.439	0.413	0.390	0.367	0.346	0.327	0.309	0.292	0.276	0.261	0.248
0.750	0.713	0.686	0.657	0.626	0.595	0.564	0.534	0.505	0.477	0.450	0.424	0.400	0.378	0.357	0.337	0.319	0.301	0.285	0.271
0.800	0.759	0.730	0.699	0.666	0.636	0.604	0.573	0.543	0.513	0.485	0.458	0.433	0.409	0.386	0.365	0.345	0.327	0.309	0.293
0.850	0.796	0.767	0.737	0.706	0.674	0.642	0.611	0.579	0.549	0.519	0.491	0.464	0.439	0.415	0.392	0.371	0.351	0.333	0.316
0.900	0.828	0.801	0.772	0.742	0.710	0.678	0.646	0.614	0.583	0.552	0.523	0.495	0.468	0.443	0.419	0.397	0.376	0.356	0.338
0.950	0.857	0.831	0.803	0.774	0.743	0.712	0.679	0.647	0.615	0.584	0.554	0.525	0.497	0.471	0.446	0.422	0.400	0.379	0.360
1.000	0.861	0.858	0.832	0.804	0.774	0.743	0.711	0.679	0.647	0.615	0.584	0.554	0.525	0.498	0.472	0.447	0.424	0.402	0.382
1.100	0.921	0.901	0.879	0.854	0.828	0.799	0.768	0.737	0.705	0.673	0.641	0.610	0.580	0.551	0.523	0.496	0.471	0.447	0.425
1.200	0.949	0.934	0.916	0.895	0.872	0.846	0.818	0.789	0.758	0.727	0.695	0.663	0.632	0.602	0.573	0.544	0.517	0.492	0.468
1.300	0.968	0.957	0.943	0.927	0.908	0.885	0.861	0.834	0.805	0.776	0.745	0.713	0.682	0.651	0.621	0.592	0.563	0.536	0.510
1.400	0.981	0.974	0.963	0.951	0.935	0.917	0.896	0.873	0.847	0.819	0.790	0.760	0.729	0.698	0.668	0.638	0.608	0.580	0.553
1.500	0.989	0.984	0.977	0.968	0.957	0.942	0.925	0.905	0.883	0.858	0.831	0.803	0.773	0.743	0.713	0.682	0.653	0.623	0.595
1.600	0.994	0.991	0.986	0.980	0.972	0.961	0.948	0.932	0.913	0.891	0.867	0.841	0.814	0.785	0.755	0.725	0.696	0.666	0.637
1.700	0.997	0.995	0.992	0.988	0.982	0.975	0.965	0.952	0.937	0.919	0.899	0.875	0.850	0.823	0.795	0.766	0.737	0.707	0.678
1.800	0.999	0.998	0.996	0.993	0.990	0.984	0.977	0.968	0.956	0.942	0.925	0.905	0.883	0.858	0.832	0.805	0.776	0.747	0.718
1.900	0.999	0.999	0.998	0.996	0.994	0.991	0.986	0.979	0.971	0.959	0.946	0.929	0.910	0.889	0.865	0.840	0.813	0.785	0.757
2.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992	0.987	0.981	0.973	0.962	0.949	0.934	0.915	0.895	0.872	0.847	0.821	0.793
2.200	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.996	0.993	0.989	0.984	0.976	0.967	0.955	0.941	0.924	0.904	0.883
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.991	0.986	0.979	0.971	0.960	0.946	0.930	0.912
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.992	0.987	0.981	0.973	0.963	0.951
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.997	0.996	0.993	0.989	0.976
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.994	0.990
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.996
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000</			



## (R AND A EXPRESSED IN SIGMAS)

**N=11**

A\B	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.070	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
0.080	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
0.090	0.006	0.006	0.006	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.008	0.007	0.007	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.011	0.010	0.010	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001
0.140	0.015	0.014	0.013	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001
0.160	0.019	0.018	0.017	0.013	0.011	0.009	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
0.180	0.024	0.023	0.021	0.017	0.014	0.011	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002
0.200	0.029	0.028	0.026	0.021	0.017	0.014	0.012	0.010	0.009	0.007	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003
0.250	0.044	0.042	0.040	0.032	0.026	0.021	0.018	0.015	0.013	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004
0.300	0.062	0.059	0.056	0.044	0.036	0.029	0.025	0.021	0.018	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.007	0.006
0.350	0.081	0.077	0.073	0.058	0.047	0.039	0.033	0.028	0.024	0.021	0.018	0.016	0.014	0.013	0.012	0.011	0.010	0.009	0.008
0.400	0.102	0.096	0.092	0.073	0.059	0.049	0.041	0.035	0.030	0.026	0.023	0.020	0.018	0.016	0.015	0.013	0.012	0.011	0.010
0.450	0.123	0.117	0.111	0.088	0.071	0.059	0.050	0.042	0.036	0.032	0.028	0.025	0.022	0.020	0.018	0.016	0.015	0.013	0.012
0.500	0.145	0.138	0.131	0.104	0.084	0.070	0.058	0.050	0.043	0.037	0.033	0.029	0.026	0.023	0.021	0.019	0.017	0.016	0.015
0.550	0.168	0.159	0.152	0.120	0.097	0.080	0.068	0.058	0.050	0.043	0.038	0.034	0.030	0.027	0.024	0.022	0.020	0.018	0.017
0.600	0.190	0.181	0.172	0.136	0.110	0.091	0.077	0.065	0.056	0.049	0.043	0.038	0.034	0.031	0.028	0.025	0.023	0.021	0.019
0.650	0.213	0.202	0.192	0.152	0.123	0.102	0.086	0.073	0.063	0.055	0.048	0.043	0.038	0.034	0.031	0.028	0.025	0.023	0.021
0.700	0.235	0.223	0.212	0.168	0.136	0.112	0.095	0.081	0.069	0.061	0.053	0.047	0.042	0.038	0.034	0.031	0.028	0.026	0.024
0.750	0.257	0.244	0.232	0.184	0.149	0.123	0.103	0.088	0.076	0.066	0.058	0.052	0.046	0.041	0.037	0.034	0.031	0.028	0.026
0.800	0.278	0.265	0.252	0.199	0.161	0.133	0.112	0.096	0.082	0.072	0.063	0.056	0.050	0.045	0.040	0.037	0.033	0.031	0.028
0.850	0.300	0.285	0.271	0.215	0.174	0.144	0.121	0.103	0.089	0.077	0.068	0.060	0.054	0.048	0.044	0.039	0.036	0.033	0.030
0.900	0.321	0.305	0.290	0.230	0.186	0.154	0.129	0.110	0.095	0.083	0.073	0.065	0.058	0.052	0.047	0.042	0.039	0.035	0.032
0.950	0.342	0.325	0.309	0.245	0.198	0.164	0.138	0.117	0.101	0.088	0.078	0.069	0.061	0.055	0.050	0.045	0.041	0.038	0.034
1.000	0.363	0.345	0.328	0.260	0.211	0.174	0.146	0.125	0.108	0.094	0.082	0.073	0.065	0.058	0.053	0.048	0.044	0.040	0.037
1.100	0.404	0.384	0.366	0.290	0.235	0.194	0.163	0.139	0.120	0.105	0.092	0.081	0.073	0.065	0.059	0.053	0.049	0.045	0.041
1.200	0.445	0.424	0.403	0.320	0.260	0.215	0.180	0.154	0.132	0.116	0.102	0.090	0.080	0.072	0.065	0.059	0.054	0.049	0.045
1.300	0.486	0.463	0.441	0.351	0.284	0.235	0.198	0.168	0.145	0.126	0.111	0.099	0.088	0.079	0.071	0.065	0.059	0.054	0.049
1.400	0.527	0.503	0.479	0.382	0.310	0.256	0.215	0.183	0.158	0.138	0.121	0.107	0.096	0.086	0.078	0.070	0.064	0.059	0.054
1.500	0.568	0.542	0.518	0.413	0.335	0.277	0.233	0.198	0.171	0.149	0.131	0.116	0.104	0.093	0.084	0.076	0.069	0.064	0.058
1.600	0.609	0.582	0.556	0.445	0.361	0.299	0.251	0.214	0.185	0.161	0.141	0.125	0.112	0.101	0.091	0.082	0.075	0.069	0.063
1.700	0.650	0.622	0.595	0.478	0.388	0.321	0.270	0.230	0.198	0.173	0.152	0.135	0.120	0.108	0.098	0.088	0.081	0.074	0.068
1.800	0.689	0.661	0.633	0.511	0.416	0.344	0.289	0.246	0.212	0.185	0.163	0.144	0.129	0.115	0.105	0.095	0.086	0.079	0.073
1.900	0.728	0.700	0.672	0.544	0.444	0.367	0.309	0.263	0.227	0.198	0.174	0.154	0.137	0.123	0.111	0.101	0.092	0.084	0.078
2.000	0.766	0.737	0.709	0.578	0.473	0.391	0.329	0.280	0.242	0.210	0.185	0.164	0.146	0.131	0.119	0.108	0.098	0.090	0.083
2.200	0.834	0.808	0.781	0.647	0.532	0.441	0.371	0.316	0.272	0.237	0.209	0.185	0.165	0.148	0.134	0.121	0.110	0.101	0.093
2.400	0.892	0.870	0.846	0.715	0.593	0.493	0.415	0.353	0.305	0.265	0.233	0.207	0.184	0.165	0.149	0.135	0.123	0.113	0.104
2.600	0.936	0.919	0.900	0.781	0.655	0.547	0.460	0.392	0.338	0.295	0.259	0.230	0.205	0.184	0.166	0.150	0.137	0.125	0.115
2.800	0.967	0.955	0.941	0.841	0.717	0.603	0.508	0.433	0.374	0.326	0.286	0.254	0.226	0.203	0.183	0.166	0.151	0.139	0.127
3.000	0.985	0.978	0.969	0.893	0.778	0.660	0.558	0.476	0.411	0.358	0.314	0.279	0.248	0.223	0.201	0.183	0.166	0.152	0.140
3.200	0.994	0.991	0.986	0.924	0.835	0.717	0.610	0.521	0.449	0.391	0.344	0.305	0.272	0.244	0.220	0.200	0.182	0.167	0.153
3.400	0.998	0.997	0.995	0.964	0.885	0.773	0.662	0.567	0.489	0.426	0.375	0.332	0.296	0.266	0.240	0.218	0.198	0.181	0.167
3.600	1.000	0.999	0.998	0.982	0.926	0.827	0.716	0.615	0.531	0.463	0.407	0.360	0.321	0.288	0.260	0.236	0.215	0.197	0.181
3.800	1.000	1.000	1.000	0.992	0.957	0.876	0.768	0.664	0.574	0.500	0.440	0.390	0.348	0.312	0.282	0.255	0.233	0.213	0.196
4.000	1.000	1.000	1.000	0.996	0.978	0.917	0.819	0.713	0.619	0.540	0.474	0.420	0.375	0.336	0.304	0.275	0.251	0.230	0.211
4.500	1.000	1.000	1.000	1.000	0.997	0.981	0.924	0.835	0.734	0.643	0.566	0.501	0.447	0.401	0.362	0.328	0.299	0.274	0.251
5.000	1.000	1.000	1.000	1.000	1.000	0.997	0.983	0.932	0.847	0.752	0.664	0.589	0.525	0.472	0.426	0.388	0.352	0.322	0.296
5.500	1.000	1.000	1.000	1.000	1.000	1.000	0.998	0.985	0.938	0.850	0.768	0.683	0.610	0.548	0.494	0.448	0.408	0.374	0.343
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.998	0.988	0.943	0.868	0.781	0.700	0.629	0.568				



(B AND A EXPRESSED IN SIGMAS)

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A \ B	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.020	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001
0.025	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
0.030	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003
0.035	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004
0.040	0.010	0.010	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005
0.045	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006
0.050	0.015	0.015	0.015	0.015	0.014	0.014	0.014	0.013	0.013	0.012	0.012	0.011	0.011	0.010	0.010	0.009	0.008	0.008	0.007
0.060	0.021	0.021	0.021	0.021	0.021	0.020	0.020	0.019	0.018	0.018	0.017	0.016	0.015	0.014	0.014	0.013	0.012	0.011	0.011
0.070	0.029	0.029	0.029	0.028	0.028	0.027	0.027	0.026	0.025	0.024	0.023	0.022	0.021	0.020	0.019	0.017	0.016	0.015	0.015
0.080	0.038	0.038	0.037	0.037	0.036	0.035	0.035	0.033	0.032	0.031	0.030	0.028	0.027	0.026	0.024	0.023	0.021	0.020	0.019
0.090	0.047	0.047	0.047	0.046	0.046	0.045	0.044	0.042	0.041	0.039	0.038	0.036	0.034	0.032	0.030	0.029	0.027	0.025	0.024
0.100	0.058	0.058	0.058	0.057	0.056	0.055	0.053	0.052	0.050	0.048	0.046	0.044	0.042	0.040	0.038	0.035	0.033	0.031	0.029
0.120	0.083	0.083	0.082	0.081	0.080	0.078	0.076	0.074	0.071	0.069	0.066	0.063	0.060	0.057	0.054	0.050	0.047	0.043	0.042
0.140	0.111	0.111	0.110	0.109	0.107	0.105	0.102	0.099	0.096	0.092	0.088	0.084	0.080	0.076	0.072	0.068	0.064	0.060	0.056
0.160	0.142	0.142	0.141	0.139	0.137	0.134	0.131	0.127	0.123	0.119	0.114	0.109	0.104	0.098	0.093	0.088	0.083	0.778	0.073
0.180	0.177	0.176	0.175	0.173	0.170	0.167	0.163	0.158	0.153	0.148	0.142	0.136	0.129	0.123	0.116	0.110	0.103	0.097	0.091
0.200	0.213	0.213	0.211	0.209	0.206	0.202	0.197	0.192	0.186	0.179	0.172	0.166	0.157	0.149	0.141	0.133	0.124	0.118	0.111
0.250	0.313	0.312	0.310	0.307	0.303	0.297	0.290	0.282	0.274	0.265	0.255	0.245	0.234	0.222	0.211	0.200	0.189	0.178	0.167
0.300	0.417	0.416	0.414	0.410	0.405	0.398	0.390	0.380	0.370	0.358	0.345	0.332	0.318	0.303	0.289	0.274	0.259	0.244	0.230
0.350	0.520	0.520	0.517	0.513	0.507	0.499	0.489	0.478	0.466	0.452	0.438	0.422	0.405	0.388	0.370	0.352	0.333	0.315	0.297
0.400	0.617	0.616	0.613	0.609	0.602	0.594	0.584	0.573	0.559	0.544	0.528	0.510	0.491	0.472	0.451	0.430	0.409	0.388	0.367
0.450	0.703	0.702	0.700	0.695	0.689	0.681	0.671	0.659	0.645	0.630	0.613	0.594	0.574	0.553	0.530	0.507	0.484	0.460	0.436
0.500	0.777	0.776	0.774	0.769	0.763	0.756	0.746	0.735	0.722	0.706	0.689	0.670	0.650	0.628	0.605	0.580	0.555	0.529	0.503
0.550	0.837	0.836	0.834	0.830	0.825	0.818	0.809	0.799	0.787	0.772	0.756	0.738	0.718	0.696	0.673	0.648	0.622	0.595	0.567
0.600	0.885	0.884	0.882	0.879	0.874	0.868	0.861	0.852	0.841	0.828	0.813	0.796	0.777	0.756	0.733	0.708	0.682	0.655	0.626
0.650	0.921	0.920	0.919	0.916	0.912	0.907	0.901	0.893	0.884	0.873	0.860	0.844	0.827	0.807	0.784	0.762	0.736	0.709	0.681
0.700	0.947	0.947	0.946	0.944	0.941	0.937	0.932	0.925	0.917	0.908	0.897	0.883	0.866	0.850	0.831	0.808	0.784	0.758	0.730
0.750	0.964	0.964	0.963	0.963	0.961	0.958	0.954	0.949	0.943	0.935	0.926	0.915	0.901	0.884	0.868	0.848	0.825	0.800	0.773
0.800	0.978	0.978	0.978	0.977	0.975	0.973	0.970	0.966	0.961	0.955	0.948	0.938	0.927	0.914	0.899	0.880	0.860	0.837	0.812
0.850	0.987	0.987	0.986	0.986	0.984	0.983	0.981	0.978	0.974	0.970	0.964	0.957	0.948	0.936	0.923	0.907	0.889	0.866	0.843
0.900	0.992	0.992	0.992	0.991	0.991	0.989	0.988	0.986	0.983	0.980	0.976	0.970	0.963	0.954	0.943	0.929	0.913	0.895	0.873
0.950	0.996	0.995	0.995	0.995	0.994	0.994	0.993	0.991	0.990	0.987	0.984	0.979	0.974	0.967	0.958	0.947	0.933	0.917	0.898
1.000	0.998	0.997	0.997	0.997	0.997	0.996	0.996	0.995	0.994	0.992	0.989	0.986	0.982	0.976	0.969	0.960	0.949	0.935	0.918
1.100	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.994	0.992	0.989	0.984	0.977	0.971	0.961	0.949
1.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.995	0.993	0.989	0.978	0.970
1.300	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.995	0.992	0.988
1.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.991
1.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.993
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

Fig. 12

A	1.9A	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.040	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.045	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.050	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002
0.060	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003
0.070	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004
0.080	0.018	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006
0.090	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007
0.100	0.027	0.026	0.024	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009
0.120	0.039	0.037	0.034	0.032	0.030	0.028	0.026	0.024	0.023	0.021	0.020	0.019	0.018	0.016	0.016	0.015	0.014	0.013	0.012
0.140	0.053	0.049	0.046	0.043	0.040	0.037	0.035	0.033	0.031	0.029	0.027	0.025	0.024	0.022	0.021	0.020	0.019	0.018	0.017
0.160	0.068	0.064	0.060	0.056	0.052	0.049	0.045	0.042	0.040	0.037	0.035	0.033	0.031	0.029	0.027	0.026	0.024	0.023	0.022
0.180	0.085	0.080	0.075	0.070	0.065	0.061	0.057	0.053	0.050	0.047	0.044	0.041	0.038	0.036	0.034	0.032	0.030	0.029	0.027
0.200	0.104	0.097	0.091	0.085	0.080	0.074	0.069	0.065	0.061	0.057	0.053	0.050	0.047	0.044	0.042	0.039	0.037	0.035	0.033
0.250	0.157	0.147	0.137	0.129	0.120	0.112	0.105	0.098	0.092	0.085	0.081	0.076	0.071	0.067	0.063	0.060	0.056	0.053	0.050
0.300	0.216	0.203	0.190	0.178	0.167	0.156	0.146	0.136	0.128	0.120	0.112	0.105	0.099	0.093	0.088	0.083	0.078	0.074	0.070
0.350	0.280	0.263	0.247	0.231	0.217	0.203	0.190	0.178	0.167	0.156	0.147	0.138	0.130	0.122	0.115	0.108	0.102	0.097	0.092
0.400	0.346	0.326	0.306	0.288	0.270	0.253	0.237	0.222	0.208	0.195	0.183	0.172	0.162	0.153	0.144	0.136	0.128	0.121	0.115
0.450	0.412	0.389	0.366	0.345	0.324	0.304	0.285	0.267	0.251	0.236	0.221	0.208	0.196	0.184	0.174	0.164	0.155	0.147	0.139
0.500	0.477	0.451	0.426	0.401	0.378	0.355	0.334	0.313	0.294	0.276	0.260	0.244	0.230	0.216	0.204	0.193	0.182	0.172	0.163
0.550	0.539	0.511	0.484	0.457	0.431	0.405	0.381	0.359	0.337	0.317	0.298	0.280	0.264	0.249	0.235	0.222	0.209	0.198	0.188
0.600	0.597	0.568	0.539	0.510	0.482	0.454	0.428	0.403	0.379	0.357	0.336	0.316	0.298	0.281	0.265	0.250	0.237	0.224	0.212
0.650	0.651	0.621	0.591	0.561	0.531	0.502	0.473	0.446	0.421	0.396	0.373	0.352	0.331	0.313	0.295	0.279	0.264	0.250	0.237
0.700	0.700	0.670	0.639	0.608	0.577	0.546	0.517	0.488	0.460	0.434	0.409	0.384	0.364	0.344	0.324	0.307	0.290	0.275	0.260
0.750	0.745	0.715	0.684	0.652	0.621	0.589	0.558	0.528	0.499	0.471	0.445	0.420	0.396	0.374	0.353	0.334	0.316	0.299	0.284
0.800	0.784	0.755	0.725	0.693	0.661	0.629	0.597	0.566	0.536	0.507	0.479	0.452	0.427	0.404	0.382	0.361	0.342	0.324	0.307
0.850	0.819	0.791	0.762	0.731	0.699	0.667	0.634	0.603	0.571	0.541	0.512	0.484	0.458	0.433	0.409	0.387	0.367	0.348	0.330
0.900	0.850	0.823	0.795	0.765	0.734	0.702	0.669	0.637	0.605	0.574	0.544	0.515	0.487	0.461	0.437	0.413	0.392	0.371	0.352
0.950	0.876	0.852	0.825	0.796	0.766	0.735	0.702	0.670	0.638	0.606	0.575	0.545	0.516	0.489	0.463	0.439	0.416	0.395	0.375
1.000	0.899	0.876	0.852	0.825	0.796	0.765	0.733	0.701	0.669	0.637	0.605	0.574	0.545	0.517	0.490	0.464	0.440	0.418	0.397
1.100	0.934	0.916	0.896	0.873	0.847	0.819	0.789	0.758	0.726	0.694	0.662	0.630	0.600	0.570	0.541	0.514	0.488	0.463	0.440
1.200	0.959	0.945	0.924	0.910	0.888	0.864	0.837	0.808	0.778	0.747	0.715	0.683	0.652	0.621	0.591	0.562	0.535	0.508	0.484
1.300	0.975	0.966	0.954	0.939	0.921	0.901	0.877	0.852	0.824	0.794	0.764	0.733	0.701	0.670	0.639	0.610	0.581	0.553	0.527
1.400	0.986	0.979	0.971	0.960	0.946	0.930	0.910	0.888	0.864	0.837	0.806	0.774	0.748	0.717	0.686	0.656	0.626	0.597	0.569
1.500	0.992	0.988	0.983	0.975	0.965	0.952	0.937	0.918	0.897	0.874	0.848	0.820	0.795	0.761	0.731	0.700	0.670	0.641	0.612
1.600	0.994	0.994	0.990	0.985	0.978	0.969	0.957	0.942	0.925	0.905	0.882	0.857	0.830	0.802	0.773	0.743	0.713	0.683	0.654
1.700	0.998	0.997	0.995	0.991	0.987	0.980	0.972	0.961	0.947	0.931	0.911	0.890	0.866	0.839	0.812	0.783	0.754	0.724	0.695
1.800	0.999	0.998	0.997	0.995	0.992	0.988	0.982	0.974	0.964	0.951	0.936	0.917	0.896	0.873	0.848	0.821	0.793	0.764	0.735
1.900	1.000	0.999	0.999	0.998	0.996	0.993	0.989	0.984	0.977	0.967	0.955	0.940	0.922	0.902	0.879	0.855	0.829	0.801	0.773
2.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.990	0.985	0.978	0.969	0.958	0.943	0.927	0.907	0.885	0.861	0.836	0.809
2.200	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.992	0.988	0.981	0.973	0.963	0.950	0.934	0.916	0.895	0.873
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.993	0.989	0.984	0.976	0.967	0.955	0.940	0.923
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.991	0.986	0.979	0.970	0.959
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.992	0.981
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N=12

A/R	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
0.070	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
0.080	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.090	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.012	0.011	0.011	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.140	0.016	0.015	0.014	0.011	0.009	0.008	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.160	0.021	0.020	0.019	0.015	0.012	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002
0.180	0.026	0.024	0.023	0.018	0.015	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003
0.200	0.032	0.030	0.028	0.023	0.018	0.015	0.013	0.011	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003
0.250	0.048	0.045	0.043	0.034	0.028	0.023	0.019	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005
0.300	0.067	0.063	0.060	0.048	0.039	0.032	0.027	0.023	0.020	0.017	0.015	0.013	0.012	0.011	0.010	0.009	0.008	0.007	0.007
0.350	0.087	0.083	0.079	0.062	0.050	0.042	0.035	0.030	0.026	0.022	0.020	0.017	0.016	0.014	0.013	0.011	0.010	0.010	0.009
0.400	0.109	0.104	0.098	0.078	0.063	0.052	0.044	0.037	0.032	0.028	0.025	0.022	0.019	0.017	0.016	0.014	0.013	0.012	0.011
0.450	0.132	0.125	0.119	0.094	0.076	0.063	0.052	0.045	0.039	0.034	0.030	0.026	0.024	0.021	0.019	0.017	0.016	0.014	0.013
0.500	0.155	0.147	0.140	0.111	0.090	0.074	0.062	0.053	0.046	0.040	0.035	0.031	0.028	0.025	0.022	0.020	0.019	0.017	0.016
0.550	0.178	0.169	0.161	0.127	0.103	0.085	0.072	0.061	0.053	0.046	0.040	0.036	0.032	0.029	0.026	0.023	0.021	0.020	0.018
0.600	0.201	0.191	0.182	0.144	0.117	0.096	0.081	0.069	0.060	0.052	0.046	0.040	0.036	0.032	0.029	0.026	0.024	0.022	0.020
0.650	0.224	0.213	0.203	0.160	0.130	0.107	0.090	0.077	0.066	0.058	0.051	0.045	0.040	0.036	0.033	0.030	0.027	0.025	0.023
0.700	0.247	0.235	0.223	0.177	0.143	0.118	0.100	0.085	0.073	0.064	0.056	0.050	0.044	0.040	0.036	0.032	0.030	0.027	0.025
0.750	0.270	0.256	0.244	0.193	0.156	0.129	0.108	0.092	0.080	0.069	0.061	0.054	0.048	0.043	0.039	0.035	0.032	0.030	0.027
0.800	0.292	0.277	0.264	0.209	0.169	0.140	0.117	0.100	0.086	0.075	0.066	0.059	0.052	0.047	0.042	0.038	0.035	0.032	0.029
0.850	0.313	0.298	0.283	0.224	0.182	0.150	0.126	0.108	0.093	0.081	0.071	0.063	0.056	0.050	0.045	0.041	0.038	0.034	0.032
0.900	0.335	0.318	0.303	0.240	0.194	0.160	0.135	0.115	0.099	0.086	0.076	0.067	0.060	0.054	0.049	0.044	0.040	0.037	0.034
0.950	0.356	0.338	0.322	0.255	0.207	0.171	0.143	0.122	0.104	0.092	0.081	0.072	0.064	0.057	0.052	0.047	0.043	0.039	0.036
1.000	0.377	0.358	0.341	0.270	0.219	0.181	0.152	0.130	0.112	0.097	0.086	0.076	0.068	0.061	0.055	0.050	0.045	0.041	0.038
1.100	0.419	0.398	0.379	0.301	0.244	0.201	0.169	0.144	0.124	0.108	0.095	0.084	0.075	0.068	0.061	0.055	0.050	0.044	0.042
1.200	0.460	0.438	0.417	0.331	0.268	0.222	0.186	0.159	0.137	0.120	0.105	0.093	0.083	0.075	0.067	0.060	0.054	0.049	0.047
1.300	0.502	0.478	0.455	0.362	0.294	0.243	0.204	0.174	0.150	0.131	0.115	0.102	0.091	0.082	0.074	0.067	0.061	0.056	0.051
1.400	0.543	0.518	0.494	0.393	0.319	0.264	0.222	0.189	0.163	0.142	0.125	0.111	0.097	0.089	0.080	0.073	0.066	0.060	0.056
1.500	0.584	0.558	0.533	0.425	0.345	0.285	0.240	0.204	0.176	0.153	0.135	0.120	0.107	0.096	0.087	0.079	0.072	0.065	0.060
1.600	0.625	0.598	0.571	0.458	0.372	0.307	0.258	0.220	0.190	0.165	0.145	0.129	0.115	0.103	0.093	0.085	0.077	0.071	0.065
1.700	0.666	0.638	0.610	0.491	0.399	0.330	0.277	0.236	0.204	0.177	0.156	0.138	0.123	0.111	0.100	0.091	0.083	0.076	0.070
1.800	0.706	0.677	0.649	0.524	0.427	0.353	0.297	0.253	0.218	0.190	0.167	0.148	0.132	0.118	0.107	0.097	0.089	0.081	0.075
1.900	0.744	0.716	0.687	0.558	0.455	0.377	0.317	0.270	0.233	0.203	0.178	0.158	0.141	0.126	0.114	0.104	0.095	0.087	0.080
2.000	0.781	0.753	0.725	0.592	0.484	0.401	0.337	0.287	0.248	0.216	0.190	0.168	0.150	0.134	0.121	0.110	0.100	0.092	0.085
2.200	0.848	0.823	0.796	0.661	0.544	0.451	0.379	0.323	0.279	0.243	0.213	0.189	0.169	0.151	0.137	0.124	0.113	0.103	0.095
2.400	0.904	0.882	0.859	0.730	0.605	0.503	0.424	0.361	0.311	0.271	0.238	0.211	0.188	0.169	0.153	0.138	0.126	0.116	0.106
2.600	0.945	0.929	0.911	0.785	0.668	0.558	0.470	0.401	0.345	0.301	0.265	0.234	0.207	0.188	0.169	0.154	0.140	0.128	0.118
2.800	0.972	0.962	0.949	0.834	0.730	0.614	0.518	0.442	0.381	0.332	0.292	0.259	0.231	0.207	0.187	0.169	0.154	0.141	0.130
3.000	0.988	0.982	0.975	0.904	0.791	0.672	0.569	0.485	0.418	0.365	0.320	0.284	0.253	0.227	0.205	0.186	0.170	0.155	0.142
3.200	0.996	0.993	0.989	0.943	0.847	0.729	0.620	0.530	0.457	0.398	0.350	0.310	0.277	0.248	0.224	0.203	0.185	0.170	0.156
3.400	0.999	0.998	0.996	0.970	0.895	0.785	0.673	0.577	0.498	0.434	0.381	0.338	0.301	0.270	0.244	0.221	0.202	0.185	0.169
3.600	1.000	0.999	0.999	0.986	0.935	0.859	0.727	0.625	0.540	0.470	0.413	0.366	0.327	0.293	0.265	0.240	0.219	0.200	0.184
3.800	1.000	1.000	1.000	0.994	0.964	0.886	0.780	0.674	0.583	0.508	0.447	0.396	0.353	0.317	0.286	0.259	0.236	0.216	0.199
4.000	1.000	1.000	1.000	0.997	0.982	0.926	0.830	0.724	0.628	0.548	0.482	0.427	0.381	0.342	0.308	0.280	0.255	0.233	0.214
4.500	1.000	1.000	1.000	1.000	0.998	0.984	0.934	0.845	0.744	0.652	0.574	0.508	0.453	0.407	0.367	0.333	0.303	0.278	0.255
5.000	1.000	1.000	1.000	1.000	1.000	0.998	0.986	0.940	0.857	0.761	0.673	0.597	0.532	0.478	0.431	0.391	0.356	0.326	0.299
5.500	1.000	1.000	1.000	1.000	1.000	1.000	0.998	0.988	0.945	0.867	0.777	0.691	0.617	0.554	0.500</				



**H-13**

66



**N=13**

67



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N=13

A\R	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
0.070	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.080	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.090	0.007	0.007	0.007	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.009	0.008	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.013	0.012	0.011	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.140	0.017	0.016	0.015	0.012	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
0.160	0.022	0.021	0.020	0.016	0.013	0.011	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002
0.180	0.028	0.026	0.025	0.020	0.016	0.013	0.011	0.010	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003
0.200	0.034	0.032	0.031	0.024	0.020	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003
0.250	0.051	0.049	0.046	0.037	0.030	0.025	0.021	0.018	0.015	0.013	0.012	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005
0.300	0.071	0.068	0.064	0.051	0.041	0.034	0.029	0.024	0.021	0.018	0.016	0.014	0.013	0.011	0.010	0.009	0.009	0.008	0.007
0.350	0.093	0.088	0.084	0.067	0.054	0.045	0.037	0.032	0.028	0.024	0.021	0.019	0.017	0.015	0.013	0.012	0.011	0.010	0.009
0.400	0.116	0.110	0.105	0.083	0.067	0.056	0.047	0.040	0.034	0.030	0.026	0.023	0.021	0.019	0.017	0.015	0.014	0.013	0.012
0.450	0.140	0.133	0.126	0.100	0.081	0.067	0.056	0.048	0.041	0.036	0.032	0.028	0.025	0.022	0.020	0.018	0.017	0.015	0.014
0.500	0.164	0.156	0.148	0.117	0.095	0.078	0.066	0.056	0.048	0.042	0.037	0.033	0.029	0.026	0.024	0.022	0.020	0.018	0.016
0.550	0.188	0.179	0.170	0.134	0.109	0.090	0.076	0.064	0.056	0.048	0.043	0.038	0.034	0.030	0.027	0.025	0.023	0.021	0.019
0.600	0.212	0.201	0.192	0.151	0.123	0.101	0.085	0.073	0.063	0.055	0.048	0.042	0.038	0.034	0.031	0.028	0.025	0.023	0.021
0.650	0.235	0.224	0.213	0.168	0.136	0.113	0.095	0.081	0.070	0.061	0.053	0.047	0.042	0.038	0.034	0.031	0.028	0.026	0.024
0.700	0.259	0.246	0.234	0.185	0.150	0.124	0.104	0.089	0.076	0.067	0.059	0.052	0.046	0.042	0.037	0.034	0.031	0.028	0.026
0.750	0.281	0.267	0.254	0.201	0.163	0.135	0.113	0.097	0.083	0.073	0.064	0.056	0.050	0.045	0.041	0.037	0.034	0.031	0.028
0.800	0.304	0.289	0.274	0.217	0.176	0.145	0.122	0.104	0.090	0.078	0.069	0.061	0.054	0.049	0.044	0.040	0.036	0.033	0.031
0.850	0.326	0.309	0.294	0.233	0.189	0.156	0.131	0.112	0.096	0.084	0.074	0.065	0.058	0.052	0.047	0.043	0.039	0.036	0.033
0.900	0.347	0.330	0.314	0.249	0.202	0.167	0.140	0.119	0.103	0.090	0.079	0.070	0.062	0.056	0.050	0.046	0.042	0.038	0.035
0.950	0.369	0.351	0.334	0.264	0.214	0.177	0.149	0.127	0.109	0.095	0.084	0.074	0.066	0.059	0.054	0.049	0.044	0.041	0.037
1.000	0.390	0.371	0.353	0.280	0.227	0.187	0.157	0.134	0.116	0.101	0.089	0.079	0.070	0.063	0.057	0.051	0.047	0.043	0.039
1.100	0.432	0.411	0.391	0.310	0.252	0.208	0.175	0.149	0.128	0.112	0.098	0.087	0.078	0.070	0.063	0.057	0.052	0.048	0.044
1.200	0.474	0.451	0.430	0.341	0.277	0.229	0.192	0.164	0.141	0.123	0.108	0.096	0.086	0.077	0.069	0.063	0.057	0.052	0.048
1.300	0.516	0.491	0.468	0.373	0.302	0.250	0.210	0.179	0.154	0.134	0.118	0.105	0.093	0.084	0.076	0.069	0.063	0.057	0.053
1.400	0.557	0.532	0.507	0.404	0.328	0.271	0.228	0.194	0.167	0.146	0.128	0.114	0.101	0.091	0.082	0.075	0.068	0.062	0.057
1.500	0.599	0.572	0.546	0.436	0.354	0.293	0.246	0.210	0.181	0.158	0.139	0.123	0.110	0.098	0.089	0.081	0.073	0.067	0.062
1.600	0.640	0.612	0.585	0.469	0.381	0.315	0.265	0.226	0.195	0.170	0.149	0.132	0.118	0.106	0.096	0.087	0.079	0.072	0.066
1.700	0.681	0.652	0.625	0.502	0.409	0.338	0.284	0.242	0.209	0.182	0.160	0.142	0.126	0.113	0.103	0.093	0.085	0.078	0.071
1.800	0.720	0.692	0.663	0.536	0.437	0.361	0.304	0.259	0.223	0.194	0.171	0.151	0.135	0.121	0.109	0.100	0.091	0.083	0.076
1.900	0.759	0.730	0.702	0.570	0.465	0.385	0.324	0.276	0.238	0.207	0.182	0.161	0.144	0.129	0.117	0.106	0.097	0.089	0.081
2.000	0.795	0.767	0.739	0.605	0.495	0.410	0.344	0.293	0.253	0.220	0.194	0.172	0.153	0.137	0.124	0.113	0.103	0.094	0.087
2.200	0.861	0.836	0.809	0.674	0.555	0.460	0.387	0.330	0.284	0.248	0.218	0.193	0.172	0.155	0.139	0.126	0.115	0.106	0.097
2.400	0.914	0.893	0.871	0.742	0.617	0.513	0.432	0.368	0.317	0.277	0.243	0.215	0.192	0.172	0.156	0.141	0.129	0.118	0.108
2.600	0.953	0.938	0.920	0.807	0.680	0.568	0.479	0.408	0.352	0.307	0.269	0.239	0.213	0.191	0.172	0.156	0.143	0.130	0.120
2.800	0.977	0.968	0.956	0.865	0.742	0.625	0.527	0.450	0.388	0.338	0.297	0.263	0.235	0.211	0.190	0.172	0.157	0.144	0.132
3.000	0.991	0.982	0.979	0.913	0.802	0.683	0.578	0.493	0.426	0.371	0.326	0.289	0.257	0.231	0.209	0.189	0.172	0.158	0.145
3.200	0.997	0.995	0.992	0.950	0.837	0.740	0.630	0.539	0.465	0.405	0.356	0.315	0.281	0.252	0.228	0.207	0.188	0.172	0.158
3.400	0.999	0.998	0.997	0.975	0.905	0.796	0.684	0.586	0.506	0.440	0.387	0.343	0.306	0.275	0.248	0.225	0.205	0.187	0.172
3.600	1.000	1.000	0.999	0.989	0.942	0.849	0.737	0.634	0.549	0.477	0.420	0.372	0.332	0.298	0.269	0.244	0.222	0.203	0.187
3.800	1.000	1.000	1.000	0.996	0.969	0.895	0.790	0.683	0.592	0.516	0.453	0.402	0.358	0.321	0.290	0.263	0.240	0.219	0.202
4.000	1.000	1.000	1.000	0.998	0.985	0.934	0.840	0.733	0.637	0.555	0.488	0.433	0.386	0.346	0.312	0.283	0.258	0.236	0.217
4.500	1.000	1.000	1.000	1.000	0.998	0.987	0.940	0.854	0.753	0.660	0.581	0.515	0.459	0.412	0.372	0.337	0.307	0.281	0.258
5.000	1.000	1.000	1.000	1.000	1.000	0.999	0.989	0.946	0.865	0.770	0.681	0.604	0.539	0.483	0.436	0.396	0.361	0.330	0.303
5.500	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.990	0.951	0.875	0.785	0.699	0.624	0.560	0.506				



(R AND A EXPRESSED IN SIGNALS)

Ms 19

	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.020	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.025	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002
0.030	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003
0.035	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004
0.040	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.006	0.006	0.006
0.045	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.012	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007
0.050	0.017	0.017	0.017	0.017	0.017	0.016	0.016	0.015	0.015	0.014	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009
0.060	0.025	0.025	0.025	0.024	0.024	0.023	0.023	0.022	0.021	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012
0.070	0.034	0.034	0.033	0.033	0.032	0.032	0.031	0.030	0.029	0.028	0.027	0.025	0.024	0.023	0.022	0.020	0.019	0.018	0.017
0.080	0.044	0.044	0.043	0.043	0.042	0.041	0.040	0.039	0.038	0.036	0.035	0.033	0.031	0.030	0.028	0.027	0.025	0.023	0.022
0.090	0.055	0.055	0.055	0.054	0.053	0.052	0.051	0.049	0.047	0.046	0.044	0.042	0.040	0.038	0.035	0.033	0.031	0.030	0.028
0.100	0.068	0.067	0.067	0.066	0.065	0.064	0.062	0.060	0.058	0.056	0.054	0.051	0.049	0.046	0.044	0.041	0.039	0.036	0.034
0.120	0.096	0.096	0.093	0.094	0.092	0.090	0.088	0.086	0.083	0.080	0.076	0.073	0.069	0.066	0.062	0.059	0.055	0.052	0.049
0.140	0.128	0.128	0.127	0.126	0.124	0.121	0.118	0.115	0.111	0.107	0.102	0.098	0.093	0.088	0.084	0.079	0.074	0.070	0.065
0.160	0.164	0.164	0.163	0.161	0.158	0.153	0.151	0.147	0.142	0.137	0.131	0.126	0.120	0.114	0.108	0.102	0.096	0.090	0.084
0.180	0.203	0.202	0.201	0.199	0.196	0.192	0.187	0.182	0.176	0.170	0.163	0.156	0.149	0.141	0.134	0.127	0.119	0.112	0.105
0.200	0.244	0.244	0.242	0.240	0.236	0.231	0.226	0.220	0.213	0.205	0.197	0.189	0.180	0.172	0.163	0.154	0.145	0.136	0.128
0.250	0.354	0.354	0.352	0.348	0.343	0.337	0.330	0.321	0.312	0.302	0.291	0.279	0.267	0.254	0.241	0.229	0.216	0.204	0.191
0.300	0.467	0.467	0.464	0.460	0.454	0.447	0.438	0.428	0.416	0.403	0.390	0.375	0.359	0.344	0.327	0.311	0.294	0.278	0.262
0.350	0.576	0.575	0.572	0.568	0.561	0.553	0.543	0.532	0.519	0.505	0.489	0.472	0.454	0.435	0.415	0.396	0.376	0.356	0.336
0.400	0.673	0.673	0.670	0.665	0.659	0.651	0.641	0.629	0.615	0.600	0.583	0.565	0.545	0.524	0.502	0.480	0.457	0.434	0.411
0.450	0.757	0.757	0.754	0.750	0.744	0.736	0.726	0.715	0.701	0.686	0.669	0.650	0.629	0.607	0.584	0.560	0.535	0.510	0.484
0.500	0.826	0.825	0.823	0.819	0.814	0.807	0.798	0.787	0.775	0.760	0.744	0.725	0.705	0.683	0.659	0.634	0.608	0.581	0.554
0.550	0.880	0.879	0.877	0.874	0.869	0.863	0.855	0.846	0.835	0.822	0.807	0.789	0.770	0.749	0.726	0.701	0.675	0.647	0.618
0.600	0.919	0.919	0.917	0.915	0.911	0.906	0.900	0.892	0.882	0.871	0.858	0.842	0.825	0.805	0.783	0.759	0.734	0.706	0.677
0.650	0.948	0.948	0.946	0.944	0.942	0.938	0.933	0.926	0.919	0.909	0.898	0.885	0.869	0.852	0.832	0.809	0.785	0.758	0.730
0.700	0.968	0.967	0.966	0.965	0.963	0.960	0.956	0.951	0.945	0.938	0.929	0.918	0.904	0.889	0.871	0.851	0.828	0.803	0.776
0.750	0.980	0.980	0.980	0.979	0.977	0.975	0.972	0.969	0.964	0.958	0.951	0.942	0.932	0.919	0.903	0.885	0.865	0.842	0.817
0.800	0.989	0.989	0.988	0.987	0.986	0.985	0.983	0.981	0.977	0.973	0.967	0.960	0.952	0.941	0.928	0.913	0.895	0.874	0.851
0.850	0.994	0.994	0.993	0.993	0.992	0.991	0.990	0.988	0.986	0.983	0.979	0.974	0.967	0.958	0.948	0.935	0.920	0.901	0.880
0.900	0.997	0.997	0.996	0.996	0.996	0.995	0.994	0.993	0.992	0.989	0.987	0.983	0.978	0.971	0.963	0.952	0.939	0.923	0.905
0.950	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.995	0.994	0.992	0.989	0.985	0.980	0.974	0.965	0.954	0.941	0.925
1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.995	0.993	0.990	0.987	0.982	0.975	0.966	0.955	0.942
1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.996	0.994	0.992	0.988	0.982	0.975	0.966
1.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.996	0.994	0.991	0.987	0.981
1.300	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.990
1.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995
1.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		



## (18 AND A EXPRESSED IN SIGMAS)

**N=14**

A	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0.025	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001
0.040	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.045	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.050	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003
0.060	0.012	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004
0.070	0.016	0.015	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005
0.080	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.007
0.090	0.026	0.024	0.023	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009	0.008
0.100	0.032	0.030	0.028	0.026	0.024	0.023	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.011	0.011	0.010
0.120	0.045	0.042	0.040	0.037	0.035	0.032	0.030	0.028	0.026	0.025	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015	0.014
0.140	0.061	0.057	0.053	0.050	0.047	0.044	0.041	0.038	0.036	0.033	0.031	0.029	0.027	0.026	0.024	0.023	0.022	0.021	0.019
0.160	0.079	0.074	0.069	0.065	0.060	0.056	0.053	0.049	0.046	0.043	0.040	0.038	0.036	0.033	0.031	0.030	0.028	0.027	0.025
0.180	0.099	0.092	0.086	0.081	0.075	0.070	0.066	0.061	0.058	0.054	0.050	0.047	0.045	0.042	0.039	0.037	0.035	0.033	0.031
0.200	0.120	0.112	0.105	0.098	0.092	0.086	0.080	0.075	0.070	0.066	0.062	0.058	0.054	0.051	0.048	0.045	0.043	0.041	0.038
0.250	0.180	0.168	0.158	0.148	0.138	0.129	0.121	0.113	0.106	0.099	0.093	0.087	0.082	0.077	0.073	0.069	0.065	0.061	0.058
0.300	0.246	0.231	0.217	0.203	0.190	0.178	0.166	0.156	0.146	0.137	0.128	0.120	0.113	0.107	0.100	0.095	0.090	0.085	0.080
0.350	0.316	0.298	0.280	0.262	0.246	0.230	0.216	0.202	0.189	0.178	0.167	0.157	0.147	0.139	0.131	0.123	0.116	0.110	0.104
0.400	0.388	0.366	0.344	0.323	0.304	0.285	0.267	0.250	0.235	0.220	0.207	0.194	0.183	0.172	0.162	0.153	0.145	0.137	0.130
0.450	0.458	0.433	0.409	0.385	0.362	0.340	0.319	0.299	0.281	0.264	0.248	0.233	0.219	0.207	0.195	0.184	0.174	0.164	0.156
0.500	0.526	0.498	0.471	0.445	0.419	0.394	0.371	0.348	0.327	0.307	0.289	0.272	0.256	0.241	0.227	0.215	0.203	0.192	0.182
0.550	0.589	0.560	0.531	0.502	0.474	0.447	0.421	0.396	0.372	0.350	0.330	0.310	0.292	0.275	0.260	0.245	0.232	0.220	0.208
0.600	0.648	0.617	0.587	0.556	0.527	0.497	0.469	0.442	0.416	0.392	0.369	0.348	0.328	0.309	0.292	0.276	0.261	0.247	0.234
0.650	0.700	0.670	0.639	0.607	0.576	0.545	0.515	0.487	0.459	0.433	0.408	0.384	0.362	0.342	0.323	0.305	0.289	0.273	0.259
0.700	0.748	0.717	0.686	0.654	0.622	0.590	0.559	0.529	0.500	0.472	0.445	0.420	0.396	0.374	0.353	0.334	0.316	0.299	0.284
0.750	0.789	0.760	0.729	0.697	0.665	0.633	0.601	0.569	0.538	0.509	0.481	0.454	0.429	0.405	0.383	0.362	0.343	0.325	0.308
0.800	0.826	0.798	0.768	0.737	0.705	0.672	0.639	0.607	0.575	0.545	0.515	0.487	0.461	0.435	0.412	0.390	0.369	0.350	0.332
0.850	0.857	0.831	0.802	0.772	0.741	0.709	0.676	0.643	0.611	0.579	0.549	0.519	0.491	0.465	0.440	0.417	0.395	0.374	0.355
0.900	0.884	0.860	0.833	0.804	0.774	0.742	0.710	0.677	0.644	0.612	0.581	0.550	0.521	0.494	0.468	0.443	0.420	0.398	0.378
0.950	0.906	0.885	0.860	0.833	0.804	0.773	0.742	0.709	0.676	0.644	0.612	0.581	0.551	0.522	0.495	0.469	0.445	0.422	0.401
1.000	0.925	0.906	0.884	0.859	0.831	0.802	0.771	0.739	0.706	0.674	0.641	0.610	0.579	0.550	0.521	0.495	0.469	0.445	0.423
1.100	0.954	0.939	0.922	0.901	0.878	0.852	0.823	0.793	0.762	0.730	0.698	0.666	0.634	0.603	0.573	0.545	0.517	0.492	0.467
1.200	0.973	0.963	0.949	0.933	0.914	0.892	0.868	0.840	0.811	0.781	0.749	0.718	0.686	0.654	0.623	0.593	0.565	0.537	0.511
1.300	0.985	0.978	0.969	0.957	0.942	0.924	0.904	0.880	0.854	0.826	0.796	0.766	0.734	0.703	0.672	0.641	0.611	0.582	0.555
1.400	0.992	0.988	0.982	0.973	0.962	0.949	0.932	0.913	0.890	0.865	0.838	0.810	0.780	0.749	0.718	0.687	0.657	0.627	0.598
1.500	0.996	0.994	0.990	0.984	0.977	0.967	0.954	0.939	0.920	0.899	0.875	0.849	0.821	0.792	0.761	0.731	0.701	0.670	0.641
1.600	0.998	0.997	0.995	0.991	0.986	0.979	0.970	0.959	0.944	0.927	0.906	0.883	0.858	0.831	0.802	0.773	0.743	0.713	0.683
1.700	0.999	0.999	0.997	0.995	0.992	0.988	0.982	0.973	0.962	0.949	0.932	0.912	0.890	0.866	0.840	0.812	0.783	0.753	0.724
1.800	1.000	0.999	0.999	0.998	0.996	0.993	0.989	0.983	0.976	0.965	0.952	0.931	0.918	0.897	0.873	0.847	0.820	0.792	0.763
1.900	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.990	0.985	0.978	0.968	0.956	0.941	0.923	0.902	0.879	0.854	0.828	0.800
2.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.991	0.986	0.979	0.970	0.959	0.944	0.927	0.907	0.885	0.861	0.835
2.200	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.996	0.993	0.988	0.982	0.974	0.963	0.950	0.934	0.916	0.895
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.990	0.984	0.977	0.967	0.955
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.991	0.986	0.979
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.992
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.996
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N=14

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0.070	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
0.080	0.006	0.006	0.006	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.090	0.008	0.007	0.007	0.006	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.010	0.009	0.009	0.007	0.006	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.014	0.013	0.012	0.010	0.008	0.007	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.140	0.018	0.018	0.017	0.013	0.011	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.160	0.024	0.023	0.022	0.017	0.014	0.011	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002
0.180	0.030	0.028	0.027	0.021	0.017	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003
0.200	0.036	0.035	0.033	0.026	0.021	0.017	0.015	0.012	0.011	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.004	0.004	0.004
0.250	0.055	0.052	0.050	0.039	0.032	0.026	0.022	0.019	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.007	0.006	0.006
0.300	0.076	0.072	0.069	0.054	0.044	0.036	0.031	0.026	0.022	0.020	0.017	0.015	0.014	0.012	0.011	0.010	0.009	0.008	0.008
0.350	0.099	0.094	0.089	0.071	0.057	0.047	0.040	0.034	0.029	0.025	0.022	0.020	0.018	0.016	0.014	0.013	0.012	0.011	0.010
0.400	0.123	0.117	0.111	0.088	0.071	0.059	0.049	0.042	0.036	0.032	0.028	0.025	0.022	0.020	0.018	0.016	0.015	0.013	0.012
0.450	0.148	0.140	0.133	0.106	0.086	0.071	0.059	0.051	0.044	0.038	0.033	0.030	0.026	0.024	0.021	0.019	0.018	0.016	0.015
0.500	0.173	0.164	0.156	0.123	0.100	0.083	0.069	0.059	0.051	0.044	0.039	0.035	0.031	0.028	0.025	0.023	0.021	0.019	0.017
0.550	0.197	0.188	0.178	0.141	0.114	0.095	0.079	0.068	0.058	0.051	0.045	0.040	0.035	0.032	0.029	0.026	0.024	0.022	0.020
0.600	0.222	0.211	0.200	0.159	0.128	0.106	0.089	0.076	0.066	0.057	0.050	0.044	0.040	0.036	0.032	0.029	0.027	0.024	0.022
0.650	0.246	0.234	0.222	0.176	0.142	0.118	0.099	0.084	0.073	0.063	0.056	0.049	0.044	0.039	0.036	0.032	0.029	0.027	0.025
0.700	0.269	0.256	0.243	0.193	0.156	0.129	0.108	0.092	0.080	0.069	0.061	0.054	0.048	0.043	0.039	0.035	0.032	0.030	0.027
0.750	0.292	0.278	0.264	0.209	0.169	0.140	0.118	0.100	0.087	0.075	0.066	0.059	0.052	0.047	0.042	0.038	0.035	0.032	0.029
0.800	0.315	0.299	0.285	0.225	0.183	0.151	0.127	0.108	0.093	0.081	0.071	0.063	0.056	0.051	0.046	0.041	0.038	0.035	0.032
0.850	0.337	0.320	0.305	0.241	0.196	0.162	0.136	0.116	0.100	0.087	0.076	0.068	0.060	0.054	0.049	0.044	0.040	0.037	0.034
0.900	0.359	0.341	0.325	0.257	0.208	0.172	0.145	0.123	0.106	0.093	0.081	0.072	0.064	0.058	0.052	0.047	0.043	0.039	0.036
0.950	0.381	0.362	0.344	0.273	0.221	0.183	0.154	0.131	0.113	0.098	0.086	0.077	0.068	0.061	0.055	0.050	0.046	0.042	0.038
1.000	0.402	0.382	0.364	0.288	0.234	0.193	0.162	0.138	0.119	0.104	0.091	0.081	0.072	0.065	0.059	0.053	0.048	0.044	0.041
1.100	0.444	0.423	0.403	0.319	0.259	0.214	0.180	0.153	0.132	0.115	0.101	0.090	0.080	0.072	0.065	0.059	0.054	0.049	0.045
1.200	0.487	0.463	0.442	0.351	0.284	0.235	0.197	0.168	0.145	0.126	0.111	0.099	0.088	0.079	0.071	0.065	0.059	0.054	0.049
1.300	0.529	0.504	0.481	0.382	0.310	0.256	0.215	0.183	0.158	0.138	0.121	0.108	0.096	0.086	0.078	0.070	0.064	0.059	0.054
1.400	0.571	0.545	0.520	0.414	0.336	0.278	0.234	0.199	0.172	0.149	0.131	0.117	0.104	0.093	0.084	0.076	0.070	0.064	0.059
1.500	0.613	0.585	0.559	0.447	0.363	0.300	0.252	0.215	0.185	0.161	0.142	0.126	0.112	0.101	0.091	0.083	0.075	0.069	0.063
1.600	0.654	0.626	0.598	0.480	0.390	0.322	0.271	0.231	0.199	0.173	0.152	0.135	0.121	0.108	0.098	0.089	0.081	0.074	0.068
1.700	0.694	0.66	0.638	0.513	0.418	0.345	0.290	0.247	0.213	0.186	0.163	0.145	0.129	0.116	0.105	0.095	0.087	0.079	0.073
1.800	0.734	0.705	0.677	0.547	0.446	0.369	0.310	0.264	0.228	0.199	0.174	0.155	0.138	0.124	0.112	0.102	0.093	0.085	0.078
1.900	0.772	0.743	0.715	0.582	0.475	0.393	0.331	0.282	0.243	0.212	0.186	0.165	0.147	0.132	0.119	0.108	0.099	0.090	0.083
2.000	0.808	0.780	0.752	0.617	0.505	0.418	0.351	0.299	0.258	0.225	0.198	0.175	0.156	0.140	0.127	0.115	0.105	0.096	0.088
2.200	0.872	0.847	0.821	0.686	0.565	0.469	0.396	0.336	0.290	0.252	0.222	0.197	0.175	0.157	0.142	0.129	0.118	0.108	0.099
2.400	0.923	0.903	0.881	0.754	0.628	0.522	0.440	0.375	0.323	0.281	0.247	0.219	0.195	0.175	0.158	0.144	0.131	0.120	0.110
2.600	0.959	0.945	0.929	0.818	0.691	0.578	0.487	0.415	0.358	0.312	0.274	0.243	0.216	0.194	0.175	0.159	0.145	0.133	0.122
2.800	0.981	0.973	0.962	0.875	0.753	0.635	0.536	0.457	0.394	0.343	0.302	0.267	0.238	0.214	0.193	0.175	0.160	0.146	0.134
3.000	0.993	0.989	0.983	0.921	0.813	0.693	0.587	0.501	0.432	0.376	0.331	0.293	0.261	0.235	0.212	0.192	0.175	0.160	0.147
3.200	0.998	0.996	0.993	0.956	0.867	0.750	0.639	0.547	0.472	0.411	0.361	0.320	0.285	0.256	0.231	0.210	0.191	0.175	0.161
3.400	0.999	0.995	0.991	0.979	0.913	0.806	0.693	0.594	0.513	0.447	0.393	0.348	0.310	0.278	0.251	0.228	0.208	0.190	0.175
3.600	1.000	1.000	1.000	0.991	0.949	0.858	0.747	0.642	0.555	0.484	0.425	0.377	0.336	0.302	0.272	0.247	0.225	0.206	0.189
3.800	1.000	1.000	1.000	0.996	0.973	0.903	0.799	0.692	0.599	0.522	0.459	0.407	0.363	0.326	0.294	0.267	0.243	0.222	0.204
4.000	1.000	1.000	1.000	0.999	0.985	0.940	0.849	0.742	0.645	0.562	0.494	0.438	0.391	0.351	0.316	0.287	0.261	0.239	0.220
4.500	1.000	1.000	1.000	1.000	0.999	0.990	0.946	0.862	0.761	0.668	0.588	0.521	0.464	0.417	0.376	0.341	0.311	0.284	0.261
5.000	1.000	1.000	1.000	1.000	1.000	0.999	0.991	0.952	0.873	0.778	0.688	0.610	0.544	0.488	0.441	0.400	0.364	0.333	0.306
5.500	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.991	0.956	0.882	0.792	0.706	0.630	0.566	0.511				



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

**N=15**

A	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0.015	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.020	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
0.025	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002
0.030	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003
0.035	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005
0.040	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.010	0.010	0.009	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006
0.045	0.015	0.015	0.015	0.015	0.014	0.014	0.014	0.013	0.013	0.012	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.007
0.050	0.019	0.019	0.019	0.018	0.018	0.018	0.017	0.016	0.016	0.015	0.015	0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.009
0.060	0.027	0.027	0.026	0.026	0.026	0.025	0.024	0.024	0.023	0.022	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013
0.070	0.036	0.036	0.036	0.035	0.035	0.034	0.033	0.032	0.031	0.030	0.029	0.027	0.026	0.025	0.023	0.022	0.021	0.019	0.018
0.080	0.047	0.047	0.046	0.046	0.045	0.044	0.043	0.042	0.040	0.039	0.037	0.035	0.034	0.032	0.030	0.028	0.027	0.025	0.023
0.090	0.059	0.059	0.058	0.058	0.057	0.056	0.054	0.052	0.051	0.049	0.047	0.045	0.042	0.040	0.038	0.036	0.034	0.032	0.030
0.100	0.072	0.072	0.072	0.071	0.070	0.068	0.066	0.064	0.062	0.060	0.057	0.055	0.052	0.049	0.047	0.044	0.041	0.039	0.036
0.120	0.102	0.102	0.101	0.100	0.099	0.097	0.094	0.091	0.088	0.085	0.081	0.078	0.074	0.070	0.066	0.063	0.059	0.055	0.052
0.140	0.137	0.136	0.135	0.134	0.132	0.129	0.126	0.122	0.118	0.114	0.109	0.104	0.099	0.094	0.089	0.084	0.079	0.074	0.070
0.160	0.175	0.174	0.173	0.171	0.168	0.165	0.161	0.157	0.151	0.146	0.140	0.134	0.128	0.121	0.115	0.108	0.102	0.096	0.090
0.180	0.216	0.215	0.214	0.211	0.208	0.204	0.199	0.194	0.188	0.181	0.174	0.166	0.159	0.151	0.143	0.135	0.127	0.120	0.112
0.200	0.259	0.259	0.257	0.254	0.250	0.246	0.240	0.234	0.226	0.218	0.210	0.201	0.192	0.183	0.173	0.164	0.154	0.145	0.136
0.250	0.374	0.373	0.371	0.368	0.363	0.356	0.349	0.340	0.330	0.319	0.308	0.295	0.283	0.269	0.256	0.243	0.229	0.216	0.203
0.300	0.491	0.490	0.487	0.483	0.477	0.470	0.461	0.450	0.438	0.425	0.411	0.395	0.379	0.363	0.346	0.328	0.311	0.294	0.277
0.350	0.601	0.600	0.597	0.593	0.586	0.578	0.568	0.557	0.543	0.529	0.512	0.495	0.476	0.457	0.437	0.416	0.396	0.375	0.354
0.400	0.699	0.698	0.695	0.691	0.684	0.676	0.666	0.654	0.641	0.625	0.608	0.589	0.569	0.548	0.526	0.503	0.479	0.455	0.431
0.450	0.781	0.780	0.778	0.773	0.768	0.760	0.750	0.739	0.726	0.711	0.694	0.675	0.654	0.632	0.609	0.584	0.559	0.533	0.506
0.500	0.846	0.846	0.844	0.840	0.835	0.828	0.820	0.809	0.797	0.783	0.767	0.749	0.729	0.707	0.683	0.658	0.632	0.605	0.577
0.550	0.896	0.896	0.894	0.891	0.887	0.881	0.874	0.865	0.855	0.842	0.828	0.811	0.792	0.772	0.749	0.724	0.698	0.670	0.641
0.600	0.933	0.932	0.931	0.925	0.925	0.921	0.915	0.908	0.899	0.888	0.876	0.861	0.845	0.826	0.804	0.781	0.756	0.728	0.700
0.650	0.958	0.958	0.957	0.955	0.952	0.949	0.944	0.939	0.932	0.923	0.913	0.901	0.886	0.870	0.850	0.829	0.805	0.779	0.751
0.700	0.975	0.974	0.974	0.972	0.971	0.968	0.965	0.961	0.955	0.949	0.941	0.931	0.919	0.904	0.888	0.868	0.847	0.823	0.796
0.750	0.985	0.985	0.985	0.984	0.983	0.981	0.979	0.976	0.972	0.967	0.960	0.953	0.943	0.931	0.917	0.900	0.881	0.859	0.835
0.800	0.992	0.992	0.991	0.991	0.990	0.989	0.987	0.985	0.983	0.979	0.974	0.968	0.961	0.951	0.940	0.926	0.909	0.890	0.867
0.850	0.996	0.996	0.995	0.995	0.994	0.994	0.993	0.991	0.990	0.987	0.984	0.979	0.974	0.966	0.957	0.945	0.931	0.914	0.895
0.900	0.998	0.998	0.998	0.997	0.997	0.997	0.996	0.995	0.994	0.992	0.990	0.987	0.983	0.977	0.970	0.960	0.949	0.934	0.917
0.950	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.997	0.995	0.994	0.992	0.989	0.985	0.979	0.972	0.962	0.950	0.936
1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.997	0.996	0.995	0.993	0.990	0.986	0.980	0.973	0.963	0.951
1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.996	0.994	0.991	0.986	0.980	0.972
1.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.994	0.990	0.985
1.300	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992
1.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996
1.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				



## IR AND A EXPRESSED IN SIGMAS)

**N=15**

A	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000
0.025	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.040	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.045	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002
0.050	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003
0.060	0.012	0.012	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004
0.070	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005
0.080	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007
0.090	0.028	0.026	0.024	0.023	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.009
0.100	0.034	0.032	0.030	0.028	0.026	0.024	0.023	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.011	0.011
0.120	0.049	0.045	0.042	0.040	0.037	0.034	0.032	0.030	0.028	0.026	0.025	0.022	0.022	0.020	0.019	0.018	0.017	0.016	0.015
0.140	0.065	0.061	0.057	0.053	0.050	0.047	0.043	0.041	0.038	0.036	0.033	0.031	0.029	0.028	0.026	0.025	0.023	0.022	0.021
0.160	0.084	0.079	0.074	0.069	0.064	0.060	0.056	0.052	0.049	0.046	0.043	0.040	0.038	0.036	0.034	0.032	0.030	0.028	0.027
0.180	0.105	0.098	0.092	0.086	0.080	0.075	0.070	0.066	0.061	0.057	0.054	0.051	0.047	0.045	0.042	0.040	0.038	0.035	0.034
0.200	0.128	0.120	0.112	0.105	0.098	0.091	0.085	0.080	0.075	0.070	0.066	0.062	0.058	0.054	0.051	0.048	0.046	0.043	0.041
0.250	0.191	0.179	0.168	0.157	0.147	0.137	0.128	0.120	0.112	0.105	0.099	0.093	0.087	0.082	0.077	0.073	0.069	0.065	0.062
0.300	0.261	0.245	0.230	0.215	0.201	0.189	0.177	0.165	0.155	0.145	0.136	0.128	0.120	0.113	0.107	0.100	0.095	0.090	0.085
0.350	0.334	0.314	0.295	0.277	0.260	0.243	0.228	0.214	0.200	0.188	0.176	0.166	0.156	0.147	0.138	0.130	0.123	0.117	0.110
0.400	0.408	0.385	0.362	0.340	0.320	0.300	0.281	0.264	0.248	0.232	0.218	0.205	0.193	0.182	0.171	0.162	0.153	0.144	0.137
0.450	0.480	0.434	0.428	0.403	0.379	0.357	0.335	0.314	0.295	0.277	0.261	0.245	0.230	0.217	0.205	0.193	0.183	0.173	0.164
0.500	0.548	0.520	0.492	0.465	0.438	0.412	0.388	0.365	0.343	0.322	0.303	0.285	0.268	0.253	0.238	0.225	0.213	0.201	0.191
0.550	0.612	0.582	0.552	0.523	0.494	0.466	0.439	0.413	0.389	0.366	0.344	0.324	0.305	0.288	0.271	0.256	0.242	0.229	0.217
0.600	0.670	0.639	0.608	0.577	0.547	0.517	0.488	0.460	0.433	0.408	0.385	0.362	0.341	0.322	0.304	0.287	0.272	0.257	0.244
0.650	0.722	0.691	0.660	0.628	0.596	0.565	0.534	0.505	0.476	0.449	0.423	0.399	0.377	0.355	0.336	0.317	0.300	0.284	0.269
0.700	0.768	0.738	0.707	0.675	0.642	0.610	0.578	0.547	0.517	0.488	0.461	0.435	0.411	0.388	0.366	0.346	0.328	0.310	0.294
0.750	0.808	0.779	0.749	0.717	0.685	0.652	0.619	0.587	0.556	0.526	0.497	0.470	0.444	0.419	0.396	0.375	0.355	0.336	0.319
0.800	0.843	0.815	0.786	0.755	0.723	0.691	0.658	0.625	0.593	0.562	0.532	0.503	0.476	0.450	0.425	0.403	0.381	0.361	0.343
0.850	0.872	0.847	0.820	0.790	0.759	0.727	0.694	0.661	0.628	0.596	0.565	0.535	0.507	0.479	0.454	0.430	0.407	0.386	0.366
0.900	0.897	0.874	0.849	0.821	0.791	0.760	0.727	0.694	0.662	0.629	0.597	0.566	0.537	0.508	0.482	0.456	0.433	0.410	0.389
0.950	0.918	0.898	0.875	0.849	0.820	0.790	0.758	0.726	0.693	0.660	0.628	0.596	0.566	0.537	0.509	0.482	0.458	0.434	0.412
1.000	0.936	0.918	0.897	0.873	0.846	0.818	0.787	0.755	0.723	0.690	0.658	0.626	0.594	0.564	0.536	0.508	0.482	0.458	0.435
1.100	0.962	0.948	0.932	0.913	0.890	0.865	0.838	0.809	0.778	0.746	0.713	0.681	0.649	0.618	0.587	0.558	0.531	0.504	0.480
1.200	0.978	0.969	0.957	0.942	0.925	0.904	0.880	0.854	0.826	0.795	0.764	0.732	0.700	0.669	0.638	0.607	0.578	0.550	0.524
1.300	0.988	0.982	0.974	0.964	0.950	0.934	0.914	0.892	0.867	0.839	0.810	0.780	0.749	0.717	0.686	0.655	0.625	0.596	0.568
1.400	0.994	0.990	0.985	0.978	0.968	0.956	0.941	0.923	0.901	0.877	0.851	0.823	0.793	0.763	0.732	0.701	0.670	0.640	0.611
1.500	0.997	0.995	0.992	0.987	0.981	0.972	0.961	0.947	0.929	0.909	0.886	0.861	0.834	0.805	0.775	0.744	0.714	0.684	0.656
1.600	0.999	0.998	0.996	0.993	0.989	0.983	0.975	0.965	0.951	0.935	0.916	0.894	0.870	0.843	0.815	0.786	0.756	0.726	0.696
1.700	0.999	0.999	0.998	0.997	0.994	0.990	0.985	0.978	0.968	0.955	0.940	0.922	0.901	0.877	0.851	0.824	0.795	0.766	0.737
1.800	1.000	1.000	0.999	0.998	0.997	0.995	0.992	0.987	0.980	0.971	0.959	0.944	0.927	0.906	0.884	0.859	0.832	0.804	0.775
1.900	1.000	1.000	1.000	0.999	0.999	0.997	0.995	0.992	0.988	0.981	0.973	0.962	0.948	0.931	0.912	0.890	0.865	0.839	0.812
2.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.993	0.989	0.983	0.975	0.964	0.951	0.935	0.916	0.895	0.871	0.846
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.994	0.991	0.985	0.978	0.969	0.956	0.942	0.924	0.904
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.992	0.987	0.981	0.972	0.961	0.947
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.993	0.989	0.983	0.975
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.990
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N=15

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0.070	0.005	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.080	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.090	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.010	0.010	0.009	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.120	0.015	0.014	0.013	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001
0.140	0.020	0.019	0.018	0.014	0.011	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002
0.160	0.025	0.024	0.023	0.018	0.015	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003
0.180	0.032	0.030	0.029	0.023	0.018	0.015	0.013	0.011	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003
0.200	0.039	0.037	0.035	0.028	0.022	0.019	0.016	0.013	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004
0.250	0.059	0.056	0.053	0.042	0.034	0.028	0.024	0.020	0.017	0.015	0.013	0.012	0.010	0.009	0.008	0.008	0.007	0.006	0.006
0.300	0.081	0.077	0.073	0.058	0.047	0.039	0.032	0.026	0.021	0.018	0.016	0.014	0.013	0.011	0.010	0.010	0.009	0.008	0.008
0.350	0.105	0.099	0.095	0.075	0.061	0.050	0.042	0.036	0.031	0.027	0.024	0.021	0.019	0.017	0.015	0.014	0.013	0.011	0.011
0.400	0.130	0.123	0.117	0.093	0.075	0.062	0.052	0.044	0.038	0.033	0.029	0.026	0.023	0.021	0.019	0.017	0.016	0.014	0.013
0.450	0.155	0.148	0.140	0.111	0.090	0.074	0.062	0.053	0.046	0.040	0.035	0.031	0.028	0.025	0.022	0.020	0.019	0.017	0.016
0.500	0.181	0.172	0.163	0.129	0.105	0.087	0.073	0.062	0.053	0.047	0.041	0.036	0.032	0.029	0.026	0.024	0.022	0.020	0.018
0.550	0.206	0.196	0.186	0.147	0.119	0.099	0.083	0.071	0.061	0.053	0.047	0.041	0.037	0.033	0.030	0.027	0.025	0.023	0.021
0.600	0.231	0.220	0.209	0.165	0.134	0.111	0.093	0.079	0.068	0.060	0.052	0.046	0.041	0.037	0.033	0.030	0.028	0.025	0.023
0.650	0.256	0.243	0.231	0.183	0.148	0.122	0.103	0.088	0.076	0.066	0.058	0.051	0.046	0.041	0.037	0.034	0.031	0.028	0.026
0.700	0.279	0.265	0.252	0.200	0.162	0.134	0.112	0.096	0.083	0.072	0.063	0.056	0.050	0.045	0.040	0.037	0.033	0.031	0.028
0.750	0.303	0.288	0.274	0.216	0.175	0.145	0.122	0.104	0.090	0.078	0.069	0.061	0.054	0.049	0.044	0.040	0.036	0.033	0.030
0.800	0.325	0.309	0.294	0.233	0.189	0.156	0.131	0.112	0.096	0.084	0.074	0.065	0.058	0.052	0.047	0.043	0.039	0.036	0.033
0.850	0.348	0.331	0.315	0.249	0.202	0.167	0.140	0.119	0.103	0.090	0.079	0.070	0.062	0.056	0.050	0.046	0.042	0.038	0.035
0.900	0.370	0.352	0.335	0.265	0.215	0.177	0.149	0.127	0.110	0.096	0.084	0.074	0.066	0.060	0.054	0.049	0.044	0.041	0.037
0.950	0.392	0.372	0.354	0.281	0.228	0.188	0.158	0.135	0.116	0.101	0.089	0.079	0.070	0.063	0.057	0.052	0.047	0.043	0.040
1.000	0.413	0.393	0.374	0.297	0.240	0.199	0.167	0.142	0.123	0.107	0.094	0.083	0.074	0.067	0.060	0.055	0.050	0.045	0.042
1.100	0.456	0.434	0.413	0.328	0.266	0.220	0.185	0.157	0.136	0.118	0.104	0.092	0.082	0.074	0.067	0.060	0.055	0.050	0.046
1.200	0.499	0.475	0.453	0.359	0.291	0.241	0.202	0.172	0.149	0.130	0.114	0.101	0.090	0.081	0.073	0.066	0.060	0.055	0.051
1.300	0.541	0.516	0.492	0.391	0.317	0.262	0.220	0.188	0.162	0.141	0.124	0.110	0.098	0.088	0.080	0.072	0.066	0.060	0.055
1.400	0.583	0.557	0.531	0.424	0.344	0.284	0.239	0.203	0.175	0.153	0.134	0.119	0.106	0.095	0.086	0.078	0.071	0.065	0.060
1.500	0.625	0.597	0.571	0.456	0.371	0.306	0.257	0.219	0.189	0.165	0.145	0.128	0.115	0.103	0.093	0.084	0.077	0.070	0.065
1.600	0.667	0.638	0.610	0.490	0.398	0.329	0.277	0.236	0.203	0.177	0.156	0.138	0.123	0.111	0.100	0.091	0.083	0.076	0.069
1.700	0.707	0.678	0.650	0.524	0.426	0.352	0.296	0.252	0.218	0.190	0.167	0.148	0.132	0.118	0.107	0.097	0.089	0.081	0.074
1.800	0.746	0.717	0.689	0.558	0.455	0.376	0.316	0.269	0.232	0.202	0.178	0.158	0.141	0.126	0.114	0.104	0.095	0.087	0.079
1.900	0.784	0.755	0.727	0.593	0.484	0.401	0.337	0.287	0.247	0.215	0.189	0.168	0.150	0.135	0.121	0.110	0.100	0.092	0.085
2.000	0.819	0.792	0.764	0.627	0.514	0.426	0.358	0.305	0.263	0.229	0.201	0.178	0.159	0.143	0.129	0.117	0.107	0.098	0.090
2.200	0.882	0.854	0.837	0.697	0.575	0.477	0.401	0.342	0.295	0.257	0.226	0.200	0.178	0.160	0.144	0.131	0.120	0.109	0.101
2.400	0.931	0.912	0.891	0.765	0.638	0.531	0.447	0.381	0.328	0.286	0.251	0.223	0.199	0.178	0.161	0.146	0.133	0.122	0.112
2.600	0.964	0.951	0.936	0.828	0.701	0.587	0.494	0.421	0.363	0.317	0.278	0.246	0.220	0.197	0.178	0.162	0.147	0.135	0.124
2.800	0.984	0.977	0.967	0.884	0.763	0.644	0.544	0.464	0.400	0.348	0.306	0.271	0.242	0.217	0.196	0.178	0.162	0.148	0.136
3.000	0.994	0.991	0.986	0.929	0.822	0.702	0.595	0.508	0.438	0.382	0.335	0.297	0.265	0.238	0.215	0.195	0.177	0.162	0.149
3.200	0.998	0.997	0.995	0.961	0.876	0.760	0.648	0.554	0.478	0.416	0.366	0.324	0.289	0.260	0.234	0.212	0.194	0.177	0.163
3.400	1.000	0.999	0.999	0.982	0.920	0.815	0.701	0.601	0.519	0.452	0.398	0.352	0.314	0.282	0.254	0.231	0.210	0.192	0.177
3.600	1.000	1.000	1.000	0.992	0.954	0.866	0.755	0.650	0.562	0.490	0.431	0.381	0.340	0.305	0.276	0.250	0.228	0.208	0.191
3.800	1.000	1.000	1.000	0.997	0.977	0.911	0.808	0.700	0.606	0.529	0.465	0.412	0.367	0.330	0.297	0.270	0.246	0.225	0.207
4.000	1.000	1.000	1.000	0.999	0.990	0.946	0.857	0.750	0.652	0.569	0.500	0.443	0.395	0.355	0.320	0.290	0.264	0.242	0.222
4.500	1.000	1.000	1.000	1.000	0.999	0.991	0.952	0.869	0.769	0.675	0.594	0.526	0.469	0.421	0.380	0.345	0.314	0.287	0.264
5.000	1.000	1.000	1.000	1.000	1.000	0.999	0.992	0.956	0.880	0.785	0.694	0.616	0.550	0.493	0.445	0.404	0.368	0.337	0.309
5.500	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.993	0.960	0.889	0.799	0.712	0.636	0.571	0.515</				



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

**N=16**

A	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.015	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.020	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.025	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002
0.030	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004
0.035	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005
0.040	0.013	0.013	0.013	0.012	0.012	0.012	0.012	0.011	0.011	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006
0.045	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008
0.050	0.020	0.020	0.020	0.019	0.019	0.019	0.018	0.018	0.017	0.016	0.016	0.015	0.014	0.013	0.013	0.012	0.011	0.011	0.010
0.060	0.028	0.028	0.028	0.028	0.027	0.027	0.026	0.025	0.024	0.023	0.022	0.021	0.020	0.019	0.019	0.017	0.016	0.015	0.014
0.070	0.038	0.038	0.038	0.038	0.037	0.036	0.035	0.034	0.033	0.032	0.030	0.029	0.028	0.026	0.025	0.023	0.022	0.021	0.019
0.080	0.050	0.050	0.049	0.049	0.048	0.047	0.046	0.044	0.043	0.041	0.039	0.038	0.036	0.034	0.032	0.030	0.028	0.027	0.025
0.090	0.063	0.063	0.062	0.061	0.060	0.059	0.058	0.056	0.054	0.052	0.050	0.047	0.045	0.043	0.040	0.038	0.036	0.034	0.032
0.100	0.077	0.077	0.076	0.075	0.074	0.072	0.071	0.068	0.066	0.064	0.061	0.058	0.055	0.053	0.050	0.047	0.044	0.041	0.039
0.120	0.109	0.109	0.108	0.107	0.105	0.103	0.100	0.097	0.094	0.090	0.087	0.083	0.079	0.075	0.071	0.067	0.063	0.059	0.055
0.140	0.145	0.145	0.144	0.142	0.140	0.137	0.134	0.130	0.126	0.121	0.116	0.111	0.106	0.100	0.095	0.090	0.084	0.079	0.074
0.160	0.185	0.185	0.184	0.181	0.179	0.175	0.171	0.166	0.161	0.155	0.149	0.142	0.136	0.129	0.122	0.115	0.108	0.102	0.096
0.180	0.228	0.228	0.226	0.224	0.220	0.216	0.211	0.205	0.199	0.192	0.184	0.176	0.168	0.160	0.152	0.143	0.135	0.127	0.119
0.200	0.274	0.273	0.272	0.269	0.265	0.260	0.254	0.247	0.239	0.231	0.222	0.213	0.203	0.193	0.183	0.173	0.164	0.154	0.145
0.250	0.393	0.393	0.390	0.387	0.382	0.375	0.367	0.358	0.348	0.336	0.324	0.312	0.298	0.284	0.270	0.256	0.242	0.229	0.215
0.300	0.513	0.512	0.510	0.505	0.499	0.492	0.482	0.471	0.459	0.446	0.431	0.415	0.399	0.381	0.364	0.346	0.329	0.310	0.292
0.350	0.624	0.624	0.621	0.616	0.610	0.602	0.592	0.580	0.567	0.552	0.535	0.517	0.498	0.478	0.458	0.436	0.415	0.393	0.372
0.400	0.722	0.721	0.718	0.714	0.708	0.700	0.690	0.678	0.664	0.649	0.631	0.613	0.592	0.571	0.548	0.524	0.500	0.476	0.451
0.450	0.802	0.801	0.799	0.795	0.789	0.782	0.772	0.761	0.748	0.733	0.717	0.698	0.677	0.655	0.632	0.607	0.581	0.554	0.527
0.500	0.864	0.864	0.862	0.858	0.854	0.847	0.839	0.829	0.817	0.804	0.788	0.771	0.751	0.729	0.706	0.681	0.654	0.627	0.598
0.550	0.911	0.911	0.909	0.906	0.902	0.897	0.890	0.882	0.872	0.860	0.846	0.830	0.812	0.792	0.770	0.745	0.719	0.692	0.663
0.600	0.944	0.943	0.942	0.940	0.937	0.933	0.928	0.921	0.913	0.903	0.892	0.878	0.862	0.844	0.823	0.801	0.776	0.749	0.720
0.650	0.966	0.966	0.965	0.963	0.961	0.958	0.954	0.949	0.943	0.935	0.926	0.914	0.901	0.885	0.867	0.846	0.823	0.798	0.771
0.700	0.980	0.980	0.979	0.978	0.977	0.975	0.972	0.968	0.964	0.958	0.950	0.941	0.931	0.917	0.902	0.884	0.863	0.840	0.814
0.750	0.989	0.989	0.988	0.988	0.987	0.985	0.983	0.981	0.978	0.973	0.968	0.961	0.952	0.942	0.929	0.913	0.895	0.874	0.851
0.800	0.994	0.994	0.994	0.993	0.993	0.992	0.991	0.989	0.987	0.984	0.980	0.975	0.968	0.960	0.949	0.936	0.921	0.903	0.882
0.850	0.997	0.997	0.997	0.996	0.996	0.996	0.995	0.994	0.992	0.990	0.987	0.984	0.979	0.973	0.964	0.954	0.941	0.926	0.907
0.900	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.994	0.993	0.990	0.986	0.982	0.975	0.967	0.957	0.944	0.928
0.950	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.996	0.994	0.991	0.988	0.983	0.977	0.969	0.965
1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.999	0.998	0.998	0.996	0.995	0.992	0.989	0.984	0.978	0.969	0.958
1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.997	0.995	0.993	0.989	0.984	0.977
1.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.997	0.995	0.992	0.988
1.300	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994
1.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.997
1.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

**N=16**

A	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
0.025	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.003	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
0.040	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.045	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002
0.050	0.009	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.060	0.013	0.012	0.012	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004
0.070	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006
0.080	0.023	0.022	0.020	0.019	0.018	0.017	0.015	0.014	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007
0.090	0.029	0.028	0.026	0.024	0.022	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009
0.100	0.036	0.034	0.032	0.030	0.028	0.026	0.024	0.022	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.014	0.013	0.012	0.011
0.120	0.052	0.048	0.045	0.042	0.039	0.037	0.034	0.032	0.030	0.028	0.026	0.025	0.023	0.022	0.021	0.019	0.018	0.017	0.016
0.140	0.070	0.065	0.061	0.057	0.053	0.049	0.046	0.043	0.040	0.038	0.035	0.033	0.031	0.029	0.028	0.026	0.025	0.023	0.022
0.160	0.090	0.084	0.078	0.073	0.068	0.064	0.060	0.056	0.052	0.049	0.046	0.043	0.040	0.038	0.036	0.034	0.032	0.030	0.029
0.180	0.112	0.105	0.098	0.091	0.085	0.080	0.075	0.070	0.065	0.061	0.057	0.054	0.050	0.047	0.045	0.042	0.040	0.038	0.036
0.200	0.136	0.127	0.119	0.111	0.104	0.097	0.091	0.085	0.079	0.074	0.070	0.065	0.061	0.058	0.054	0.051	0.049	0.045	0.043
0.250	0.202	0.189	0.177	0.166	0.155	0.145	0.136	0.127	0.119	0.111	0.105	0.098	0.092	0.087	0.082	0.077	0.073	0.069	0.065
0.300	0.275	0.258	0.242	0.227	0.213	0.199	0.186	0.174	0.163	0.153	0.144	0.135	0.127	0.119	0.112	0.106	0.100	0.095	0.090
0.350	0.351	0.330	0.310	0.291	0.273	0.256	0.240	0.225	0.211	0.198	0.186	0.174	0.164	0.154	0.145	0.137	0.130	0.123	0.116
0.400	0.427	0.403	0.379	0.357	0.335	0.315	0.295	0.277	0.260	0.244	0.229	0.215	0.202	0.191	0.180	0.170	0.160	0.152	0.144
0.450	0.500	0.473	0.447	0.421	0.397	0.373	0.350	0.329	0.309	0.290	0.273	0.256	0.241	0.227	0.214	0.202	0.191	0.181	0.171
0.500	0.569	0.540	0.512	0.483	0.456	0.429	0.404	0.380	0.357	0.336	0.316	0.297	0.280	0.264	0.249	0.235	0.222	0.210	0.199
0.550	0.633	0.603	0.572	0.542	0.513	0.484	0.456	0.429	0.404	0.380	0.358	0.337	0.318	0.299	0.283	0.267	0.252	0.239	0.226
0.600	0.690	0.660	0.628	0.597	0.566	0.535	0.505	0.477	0.449	0.423	0.399	0.376	0.354	0.334	0.316	0.298	0.282	0.267	0.253
0.650	0.741	0.711	0.679	0.647	0.615	0.583	0.552	0.522	0.493	0.465	0.438	0.413	0.390	0.368	0.348	0.329	0.311	0.294	0.279
0.700	0.786	0.756	0.725	0.693	0.661	0.628	0.596	0.564	0.534	0.504	0.476	0.449	0.424	0.401	0.379	0.358	0.339	0.321	0.304
0.750	0.825	0.797	0.766	0.735	0.703	0.670	0.637	0.604	0.573	0.542	0.512	0.484	0.457	0.432	0.409	0.387	0.366	0.347	0.329
0.800	0.858	0.831	0.803	0.772	0.741	0.708	0.675	0.642	0.609	0.578	0.547	0.518	0.490	0.463	0.438	0.415	0.393	0.372	0.353
0.850	0.886	0.862	0.835	0.805	0.775	0.743	0.710	0.677	0.644	0.612	0.580	0.550	0.521	0.493	0.467	0.442	0.419	0.397	0.377
0.900	0.909	0.887	0.863	0.836	0.807	0.776	0.743	0.710	0.677	0.644	0.612	0.581	0.551	0.522	0.495	0.469	0.444	0.422	0.400
0.950	0.929	0.909	0.887	0.862	0.835	0.805	0.774	0.741	0.709	0.676	0.643	0.611	0.580	0.550	0.522	0.495	0.470	0.446	0.423
1.000	0.944	0.928	0.908	0.885	0.860	0.832	0.802	0.770	0.738	0.705	0.672	0.640	0.608	0.578	0.549	0.521	0.494	0.469	0.446
1.100	0.968	0.956	0.941	0.923	0.902	0.878	0.851	0.822	0.792	0.760	0.728	0.695	0.663	0.631	0.601	0.571	0.543	0.516	0.491
1.200	0.982	0.974	0.963	0.950	0.934	0.914	0.891	0.866	0.838	0.809	0.778	0.746	0.714	0.682	0.651	0.620	0.591	0.562	0.535
1.300	0.991	0.986	0.978	0.969	0.957	0.942	0.923	0.902	0.878	0.851	0.823	0.793	0.762	0.730	0.699	0.668	0.637	0.608	0.579
1.400	0.995	0.992	0.988	0.982	0.973	0.962	0.948	0.931	0.911	0.888	0.862	0.835	0.806	0.775	0.744	0.713	0.683	0.652	0.623
1.500	0.998	0.996	0.994	0.990	0.984	0.977	0.967	0.953	0.937	0.918	0.896	0.872	0.845	0.817	0.787	0.757	0.726	0.696	0.666
1.600	0.999	0.998	0.997	0.995	0.991	0.986	0.979	0.970	0.958	0.943	0.925	0.904	0.880	0.854	0.826	0.798	0.768	0.738	0.708
1.700	1.000	0.999	0.999	0.997	0.996	0.992	0.988	0.981	0.973	0.961	0.947	0.930	0.910	0.887	0.862	0.835	0.807	0.778	0.748
1.800	1.000	1.000	0.999	0.999	0.998	0.996	0.993	0.989	0.983	0.975	0.964	0.951	0.934	0.915	0.893	0.869	0.843	0.815	0.787
1.900	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.994	0.990	0.985	0.977	0.967	0.954	0.938	0.920	0.899	0.875	0.850	0.823
2.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.991	0.986	0.979	0.969	0.957	0.942	0.924	0.904	0.881	0.856
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.996	0.993	0.988	0.982	0.973	0.962	0.948	0.931	0.912
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.994	0.990	0.984	0.976	0.966	0.953
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.994	0.991	0.985	0.978
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.992
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.997
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N=16

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.060	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
0.070	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.080	0.007	0.007	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.090	0.009	0.008	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.011	0.010	0.010	0.008	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001
0.120	0.016	0.015	0.014	0.011	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.140	0.021	0.020	0.019	0.015	0.012	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002
0.160	0.027	0.026	0.024	0.019	0.016	0.013	0.011	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003
0.180	0.034	0.032	0.031	0.024	0.020	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003
0.200	0.041	0.039	0.037	0.029	0.024	0.020	0.017	0.014	0.012	0.011	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.005	0.004
0.250	0.062	0.059	0.056	0.044	0.036	0.030	0.025	0.021	0.018	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.007	0.006
0.300	0.085	0.081	0.077	0.061	0.049	0.041	0.034	0.029	0.025	0.022	0.019	0.017	0.015	0.014	0.012	0.011	0.010	0.009	0.009
0.350	0.110	0.105	0.100	0.079	0.064	0.053	0.044	0.038	0.033	0.028	0.025	0.022	0.020	0.018	0.016	0.014	0.013	0.012	0.011
0.400	0.136	0.129	0.123	0.097	0.079	0.065	0.055	0.047	0.040	0.035	0.031	0.027	0.024	0.022	0.020	0.018	0.016	0.015	0.014
0.450	0.163	0.154	0.147	0.116	0.094	0.078	0.065	0.056	0.048	0.042	0.037	0.033	0.029	0.026	0.024	0.021	0.019	0.018	0.016
0.500	0.189	0.179	0.171	0.135	0.109	0.090	0.076	0.065	0.056	0.049	0.043	0.038	0.034	0.030	0.027	0.025	0.023	0.021	0.019
0.550	0.215	0.204	0.194	0.153	0.124	0.103	0.086	0.074	0.063	0.055	0.049	0.043	0.038	0.034	0.031	0.028	0.026	0.024	0.022
0.600	0.240	0.228	0.217	0.172	0.139	0.115	0.097	0.082	0.071	0.062	0.054	0.048	0.043	0.039	0.035	0.032	0.029	0.026	0.024
0.650	0.265	0.252	0.239	0.189	0.153	0.127	0.106	0.091	0.078	0.068	0.060	0.053	0.047	0.043	0.038	0.035	0.032	0.029	0.027
0.700	0.289	0.274	0.261	0.207	0.167	0.138	0.116	0.099	0.085	0.074	0.065	0.058	0.052	0.046	0.042	0.038	0.035	0.032	0.029
0.750	0.312	0.297	0.282	0.223	0.181	0.150	0.126	0.107	0.092	0.081	0.071	0.063	0.056	0.050	0.045	0.041	0.037	0.034	0.031
0.800	0.335	0.319	0.303	0.240	0.194	0.161	0.135	0.115	0.099	0.087	0.076	0.067	0.060	0.054	0.049	0.044	0.040	0.037	0.034
0.850	0.358	0.340	0.324	0.256	0.208	0.172	0.144	0.123	0.106	0.092	0.081	0.072	0.064	0.058	0.052	0.047	0.043	0.039	0.036
0.900	0.380	0.361	0.344	0.272	0.221	0.182	0.153	0.131	0.113	0.098	0.086	0.076	0.068	0.061	0.055	0.050	0.046	0.042	0.038
0.950	0.402	0.382	0.364	0.288	0.234	0.193	0.162	0.138	0.119	0.104	0.091	0.081	0.072	0.065	0.058	0.053	0.048	0.044	0.041
1.000	0.424	0.403	0.384	0.304	0.247	0.204	0.171	0.146	0.126	0.110	0.096	0.085	0.076	0.068	0.062	0.056	0.051	0.047	0.043
1.100	0.467	0.444	0.423	0.336	0.272	0.225	0.189	0.161	0.139	0.121	0.107	0.094	0.084	0.076	0.068	0.062	0.056	0.052	0.047
1.200	0.510	0.486	0.463	0.368	0.298	0.246	0.207	0.176	0.152	0.133	0.117	0.103	0.092	0.083	0.075	0.068	0.062	0.056	0.052
1.300	0.552	0.527	0.502	0.400	0.324	0.268	0.225	0.192	0.165	0.144	0.127	0.112	0.100	0.090	0.081	0.074	0.067	0.061	0.056
1.400	0.595	0.568	0.542	0.432	0.351	0.290	0.244	0.208	0.179	0.156	0.137	0.122	0.109	0.097	0.088	0.080	0.073	0.067	0.061
1.500	0.637	0.609	0.582	0.465	0.378	0.312	0.263	0.224	0.193	0.168	0.148	0.131	0.117	0.105	0.095	0.086	0.078	0.072	0.066
1.600	0.678	0.649	0.621	0.499	0.406	0.335	0.282	0.240	0.207	0.180	0.159	0.141	0.125	0.113	0.102	0.092	0.084	0.077	0.071
1.700	0.719	0.689	0.661	0.533	0.434	0.359	0.302	0.257	0.222	0.193	0.170	0.150	0.134	0.120	0.109	0.099	0.090	0.082	0.076
1.800	0.758	0.729	0.700	0.568	0.463	0.383	0.322	0.274	0.236	0.206	0.181	0.160	0.143	0.129	0.116	0.105	0.096	0.088	0.081
1.900	0.795	0.766	0.738	0.602	0.492	0.407	0.342	0.292	0.252	0.219	0.193	0.171	0.152	0.137	0.123	0.112	0.102	0.094	0.086
2.000	0.830	0.802	0.775	0.637	0.522	0.433	0.364	0.310	0.267	0.233	0.205	0.181	0.162	0.145	0.131	0.119	0.108	0.099	0.091
2.200	0.891	0.867	0.842	0.707	0.584	0.485	0.407	0.347	0.299	0.261	0.229	0.203	0.181	0.163	0.147	0.133	0.121	0.111	0.102
2.400	0.937	0.919	0.899	0.775	0.647	0.539	0.453	0.386	0.333	0.290	0.255	0.226	0.202	0.181	0.163	0.148	0.135	0.123	0.114
2.600	0.969	0.957	0.942	0.838	0.710	0.595	0.501	0.427	0.368	0.321	0.282	0.250	0.223	0.200	0.181	0.164	0.149	0.137	0.125
2.800	0.987	0.980	0.972	0.892	0.772	0.652	0.551	0.470	0.405	0.353	0.310	0.275	0.245	0.220	0.199	0.180	0.164	0.150	0.138
3.000	0.996	0.993	0.988	0.935	0.831	0.711	0.603	0.514	0.444	0.387	0.340	0.301	0.268	0.241	0.217	0.197	0.180	0.164	0.151
3.200	0.999	0.998	0.996	0.966	0.883	0.768	0.656	0.561	0.484	0.421	0.370	0.328	0.293	0.265	0.237	0.215	0.196	0.179	0.165
3.400	1.000	0.999	0.999	0.984	0.927	0.823	0.709	0.608	0.525	0.458	0.402	0.356	0.318	0.285	0.257	0.234	0.213	0.195	0.179
3.600	1.000	1.000	1.000	0.994	0.959	0.874	0.763	0.658	0.568	0.495	0.435	0.386	0.344	0.309	0.279	0.253	0.230	0.211	0.194
3.800	1.000	1.000	1.000	0.997	0.980	0.917	0.815	0.708	0.613	0.534	0.470	0.416	0.371	0.333	0.301	0.273	0.246	0.227	0.209
4.000	1.000	1.000	1.000	0.999	0.991	0.951	0.864	0.758	0.659	0.575	0.505	0.448	0.399	0.358	0.323	0.293	0.267	0.245	0.225
4.500	1.000	1.000	1.000	0.999	0.992	0.956	0.876	0.776	0.681	0.595	0.531	0.474	0.425	0.384	0.348	0.317	0.290	0.267	0.247
5.000	1.000	1.000	1.000	1.000	0.999	0.993	0.961	0.886	0.792	0.701	0.621	0.554	0.498	0.449	0.407	0.371	0.340	0.312	0.287
5.500	1.000	1.000	1.000	1.000	1.000	1.000	0.994	0.964	0.895	0.805	0.718	0.641	0.575	0.519	0.471</				



(1) AND A EXPRESSED IN SIGNALS)

**N=17**

A	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000
0.015	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.020	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.025	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003
0.030	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004
0.035	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.005	0.005
0.040	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007
0.045	0.017	0.017	0.017	0.017	0.016	0.016	0.016	0.015	0.015	0.014	0.013	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.008
0.050	0.021	0.021	0.021	0.021	0.020	0.020	0.019	0.019	0.018	0.017	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.011	0.010
0.060	0.030	0.030	0.030	0.029	0.029	0.028	0.028	0.027	0.026	0.025	0.024	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015
0.070	0.041	0.041	0.040	0.040	0.039	0.038	0.037	0.036	0.035	0.034	0.032	0.031	0.029	0.028	0.026	0.025	0.023	0.022	0.020
0.080	0.053	0.053	0.052	0.052	0.051	0.050	0.049	0.047	0.045	0.044	0.042	0.040	0.038	0.036	0.034	0.032	0.030	0.028	0.027
0.090	0.066	0.066	0.066	0.066	0.065	0.064	0.063	0.061	0.059	0.057	0.055	0.053	0.050	0.048	0.045	0.043	0.040	0.038	0.036
0.100	0.081	0.081	0.081	0.080	0.078	0.077	0.075	0.073	0.070	0.067	0.065	0.062	0.059	0.056	0.053	0.050	0.047	0.044	0.041
0.120	0.115	0.115	0.114	0.113	0.111	0.109	0.106	0.103	0.099	0.096	0.092	0.088	0.083	0.079	0.075	0.071	0.066	0.062	0.059
0.140	0.153	0.153	0.152	0.150	0.148	0.145	0.141	0.137	0.133	0.128	0.123	0.117	0.112	0.106	0.100	0.095	0.089	0.084	0.079
0.160	0.195	0.195	0.194	0.192	0.189	0.185	0.181	0.175	0.170	0.164	0.157	0.150	0.143	0.136	0.129	0.122	0.115	0.108	0.101
0.180	0.241	0.240	0.239	0.236	0.233	0.228	0.223	0.217	0.210	0.202	0.195	0.186	0.178	0.169	0.160	0.151	0.143	0.134	0.126
0.200	0.286	0.286	0.286	0.283	0.279	0.274	0.267	0.260	0.252	0.244	0.234	0.225	0.214	0.204	0.194	0.183	0.173	0.163	0.153
0.250	0.412	0.411	0.409	0.405	0.400	0.393	0.385	0.375	0.365	0.353	0.341	0.327	0.313	0.299	0.284	0.270	0.255	0.241	0.226
0.300	0.534	0.534	0.531	0.527	0.521	0.513	0.503	0.492	0.480	0.466	0.450	0.434	0.417	0.399	0.381	0.362	0.344	0.325	0.307
0.350	0.647	0.646	0.643	0.639	0.632	0.624	0.614	0.602	0.589	0.573	0.557	0.539	0.519	0.499	0.477	0.456	0.433	0.411	0.389
0.400	0.743	0.742	0.740	0.735	0.729	0.721	0.711	0.700	0.686	0.671	0.654	0.635	0.614	0.592	0.569	0.545	0.520	0.495	0.470
0.450	0.821	0.820	0.818	0.814	0.809	0.801	0.792	0.782	0.769	0.754	0.738	0.719	0.699	0.677	0.653	0.628	0.602	0.575	0.547
0.500	0.880	0.880	0.878	0.875	0.870	0.864	0.856	0.847	0.836	0.823	0.808	0.790	0.771	0.750	0.726	0.701	0.675	0.647	0.618
0.550	0.923	0.923	0.922	0.919	0.915	0.910	0.904	0.897	0.887	0.876	0.863	0.848	0.830	0.811	0.789	0.765	0.739	0.712	0.683
0.600	0.953	0.953	0.952	0.950	0.947	0.943	0.939	0.933	0.925	0.916	0.905	0.893	0.878	0.860	0.840	0.818	0.794	0.767	0.739
0.650	0.972	0.972	0.971	0.970	0.968	0.966	0.962	0.958	0.952	0.945	0.937	0.926	0.914	0.899	0.882	0.862	0.840	0.815	0.788
0.700	0.984	0.984	0.984	0.983	0.982	0.980	0.977	0.974	0.970	0.965	0.959	0.951	0.941	0.929	0.914	0.897	0.877	0.855	0.830
0.750	0.992	0.992	0.991	0.991	0.990	0.989	0.987	0.985	0.982	0.979	0.974	0.968	0.960	0.951	0.939	0.924	0.907	0.888	0.865
0.800	0.996	0.996	0.995	0.995	0.995	0.994	0.993	0.992	0.990	0.987	0.984	0.980	0.974	0.966	0.957	0.945	0.931	0.914	0.894
0.850	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.995	0.994	0.993	0.990	0.987	0.983	0.978	0.970	0.961	0.949	0.935	0.918
0.900	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.998	0.997	0.996	0.994	0.992	0.989	0.985	0.980	0.973	0.964	0.952	0.937
0.950	1.000	1.000	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.998	0.997	0.995	0.994	0.991	0.987	0.981	0.974	0.965	0.952
1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.996	0.994	0.991	0.987	0.982	0.974	0.965
1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.997	0.995	0.992	0.987	0.981
1.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.996	0.994	0.990
1.300	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.997	0.996
1.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998
1.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				



## (1R AND A EXPRESSED IN SIGNALS)

N=17

A	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.020	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.025	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.040	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.045	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003
0.050	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003
0.060	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004
0.070	0.019	0.018	0.017	0.016	0.014	0.014	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006
0.080	0.025	0.023	0.022	0.020	0.019	0.018	0.016	0.015	0.014	0.013	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.008
0.090	0.031	0.029	0.027	0.025	0.024	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010
0.100	0.033	0.036	0.034	0.031	0.029	0.027	0.025	0.024	0.022	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.014	0.013	0.012
0.120	0.055	0.051	0.048	0.045	0.042	0.039	0.036	0.034	0.032	0.030	0.028	0.026	0.025	0.023	0.022	0.021	0.019	0.018	0.017
0.140	0.074	0.069	0.064	0.060	0.056	0.052	0.049	0.046	0.043	0.040	0.038	0.035	0.033	0.031	0.029	0.028	0.026	0.025	0.023
0.160	0.095	0.089	0.083	0.078	0.072	0.068	0.063	0.059	0.055	0.052	0.049	0.046	0.043	0.040	0.038	0.036	0.034	0.032	0.030
0.180	0.118	0.111	0.103	0.097	0.090	0.084	0.079	0.074	0.069	0.065	0.061	0.057	0.053	0.050	0.047	0.045	0.042	0.040	0.038
0.200	0.143	0.134	0.126	0.117	0.110	0.103	0.096	0.090	0.084	0.079	0.074	0.069	0.065	0.061	0.058	0.054	0.051	0.049	0.046
0.250	0.213	0.200	0.187	0.175	0.164	0.153	0.143	0.134	0.126	0.118	0.110	0.104	0.097	0.092	0.086	0.081	0.077	0.073	0.069
0.300	0.289	0.271	0.255	0.239	0.224	0.209	0.196	0.184	0.172	0.161	0.151	0.142	0.133	0.126	0.118	0.112	0.106	0.100	0.095
0.350	0.367	0.346	0.325	0.305	0.286	0.269	0.252	0.236	0.221	0.207	0.195	0.183	0.172	0.162	0.153	0.144	0.136	0.129	0.122
0.400	0.445	0.420	0.396	0.373	0.350	0.329	0.308	0.289	0.272	0.255	0.239	0.225	0.212	0.199	0.188	0.177	0.168	0.159	0.150
0.450	0.519	0.492	0.465	0.438	0.413	0.388	0.365	0.343	0.322	0.302	0.284	0.267	0.252	0.237	0.223	0.211	0.199	0.189	0.179
0.500	0.589	0.560	0.530	0.501	0.473	0.446	0.420	0.395	0.371	0.349	0.328	0.309	0.291	0.274	0.259	0.244	0.231	0.219	0.207
0.550	0.653	0.622	0.591	0.560	0.530	0.501	0.472	0.445	0.419	0.394	0.371	0.350	0.329	0.311	0.293	0.277	0.262	0.248	0.235
0.600	0.709	0.679	0.647	0.615	0.583	0.552	0.522	0.493	0.465	0.438	0.413	0.389	0.367	0.346	0.327	0.309	0.292	0.276	0.262
0.650	0.759	0.729	0.697	0.665	0.633	0.600	0.569	0.538	0.508	0.479	0.452	0.427	0.403	0.380	0.359	0.339	0.321	0.304	0.288
0.700	0.803	0.773	0.743	0.711	0.678	0.645	0.612	0.580	0.549	0.519	0.490	0.463	0.437	0.413	0.390	0.369	0.349	0.331	0.314
0.750	0.840	0.812	0.783	0.751	0.719	0.686	0.653	0.620	0.588	0.557	0.526	0.498	0.471	0.445	0.421	0.398	0.377	0.357	0.339
0.800	0.871	0.846	0.818	0.788	0.756	0.724	0.691	0.657	0.625	0.592	0.561	0.531	0.503	0.476	0.450	0.426	0.404	0.383	0.363
0.850	0.898	0.875	0.849	0.820	0.790	0.759	0.726	0.693	0.659	0.627	0.594	0.564	0.534	0.506	0.479	0.454	0.430	0.408	0.387
0.900	0.920	0.899	0.875	0.849	0.820	0.790	0.758	0.725	0.692	0.659	0.626	0.595	0.564	0.535	0.507	0.480	0.455	0.432	0.410
0.950	0.937	0.919	0.898	0.874	0.848	0.819	0.788	0.756	0.723	0.690	0.657	0.625	0.593	0.563	0.534	0.507	0.481	0.456	0.433
1.000	0.952	0.936	0.918	0.896	0.872	0.844	0.815	0.784	0.752	0.719	0.686	0.654	0.622	0.591	0.561	0.533	0.506	0.480	0.456
1.100	0.973	0.962	0.948	0.931	0.911	0.888	0.863	0.834	0.804	0.773	0.741	0.708	0.676	0.644	0.613	0.583	0.555	0.527	0.502
1.200	0.985	0.978	0.969	0.957	0.941	0.923	0.901	0.877	0.850	0.821	0.790	0.759	0.727	0.695	0.663	0.632	0.602	0.574	0.546
1.300	0.993	0.988	0.982	0.974	0.963	0.949	0.932	0.911	0.888	0.862	0.834	0.805	0.774	0.743	0.711	0.680	0.649	0.619	0.590
1.400	0.997	0.994	0.990	0.985	0.977	0.968	0.955	0.939	0.920	0.898	0.873	0.846	0.817	0.787	0.756	0.725	0.694	0.664	0.634
1.500	0.998	0.997	0.995	0.992	0.987	0.980	0.971	0.959	0.944	0.926	0.905	0.882	0.856	0.828	0.798	0.768	0.738	0.707	0.677
1.600	0.999	0.999	0.998	0.996	0.993	0.989	0.983	0.974	0.963	0.949	0.932	0.912	0.889	0.864	0.837	0.808	0.779	0.749	0.719
1.700	1.000	1.000	0.999	0.998	0.997	0.994	0.990	0.984	0.977	0.966	0.953	0.937	0.918	0.896	0.872	0.845	0.817	0.788	0.759
1.800	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.991	0.986	0.979	0.969	0.957	0.941	0.923	0.902	0.878	0.853	0.825	0.797
1.900	1.000	1.000	1.000	1.000	0.999	0.999	0.997	0.995	0.992	0.987	0.980	0.971	0.960	0.945	0.927	0.907	0.884	0.859	0.833
2.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.993	0.988	0.982	0.973	0.962	0.948	0.931	0.912	0.890	0.865
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.994	0.990	0.984	0.977	0.967	0.954	0.938	0.920
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.995	0.991	0.986	0.979	0.970	0.958
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.997	0.996	0.992	0.988	0.981
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.993
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N=17

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.050	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
0.060	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.070	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.080	0.007	0.007	0.007	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.090	0.009	0.009	0.008	0.007	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.100	0.012	0.011	0.010	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.120	0.016	0.016	0.015	0.012	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
0.140	0.022	0.021	0.020	0.016	0.013	0.011	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003
0.160	0.029	0.027	0.026	0.020	0.017	0.014	0.012	0.010	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003
0.180	0.036	0.034	0.032	0.026	0.021	0.017	0.014	0.012	0.011	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004
0.200	0.044	0.041	0.039	0.031	0.025	0.021	0.018	0.015	0.013	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004
0.250	0.065	0.062	0.059	0.047	0.038	0.031	0.026	0.022	0.019	0.017	0.015	0.013	0.012	0.010	0.009	0.009	0.008	0.007	0.007
0.300	0.090	0.085	0.081	0.064	0.052	0.043	0.036	0.031	0.026	0.023	0.020	0.018	0.016	0.014	0.013	0.012	0.011	0.010	0.009
0.350	0.116	0.110	0.104	0.083	0.067	0.055	0.047	0.040	0.034	0.030	0.026	0.023	0.021	0.019	0.017	0.015	0.014	0.013	0.012
0.400	0.143	0.135	0.129	0.102	0.083	0.068	0.057	0.049	0.042	0.037	0.032	0.029	0.025	0.023	0.021	0.019	0.017	0.016	0.014
0.450	0.170	0.161	0.153	0.121	0.098	0.081	0.068	0.058	0.050	0.044	0.038	0.034	0.030	0.027	0.025	0.022	0.020	0.019	0.017
0.500	0.196	0.187	0.178	0.140	0.114	0.094	0.079	0.067	0.058	0.051	0.044	0.039	0.035	0.032	0.028	0.026	0.024	0.022	0.020
0.550	0.223	0.212	0.201	0.159	0.129	0.107	0.090	0.076	0.066	0.057	0.050	0.045	0.040	0.036	0.032	0.029	0.027	0.024	0.022
0.600	0.249	0.236	0.225	0.178	0.144	0.119	0.100	0.085	0.073	0.064	0.056	0.050	0.044	0.040	0.036	0.033	0.030	0.027	0.025
0.650	0.273	0.260	0.247	0.196	0.158	0.131	0.110	0.094	0.081	0.070	0.062	0.055	0.049	0.044	0.040	0.036	0.033	0.030	0.028
0.700	0.298	0.283	0.269	0.213	0.173	0.143	0.120	0.102	0.088	0.077	0.067	0.060	0.053	0.048	0.043	0.039	0.036	0.033	0.030
0.750	0.321	0.305	0.291	0.230	0.186	0.154	0.129	0.110	0.095	0.083	0.073	0.065	0.058	0.052	0.047	0.042	0.039	0.035	0.032
0.800	0.345	0.328	0.312	0.247	0.200	0.165	0.139	0.118	0.102	0.089	0.078	0.069	0.062	0.055	0.050	0.045	0.041	0.038	0.035
0.850	0.367	0.349	0.332	0.263	0.213	0.176	0.148	0.126	0.109	0.095	0.083	0.074	0.066	0.059	0.053	0.048	0.044	0.040	0.037
0.900	0.390	0.371	0.353	0.279	0.226	0.187	0.157	0.134	0.116	0.101	0.089	0.078	0.070	0.063	0.057	0.051	0.047	0.043	0.039
0.950	0.412	0.392	0.373	0.295	0.239	0.198	0.166	0.142	0.122	0.107	0.094	0.083	0.074	0.066	0.060	0.054	0.050	0.045	0.042
1.000	0.434	0.413	0.393	0.311	0.252	0.209	0.175	0.149	0.129	0.112	0.099	0.087	0.078	0.070	0.063	0.057	0.052	0.048	0.044
1.100	0.477	0.454	0.433	0.343	0.278	0.230	0.193	0.165	0.142	0.124	0.109	0.096	0.086	0.077	0.070	0.063	0.058	0.053	0.048
1.200	0.520	0.496	0.472	0.375	0.304	0.252	0.211	0.180	0.155	0.135	0.119	0.106	0.094	0.084	0.076	0.069	0.063	0.058	0.053
1.300	0.563	0.537	0.512	0.408	0.331	0.273	0.230	0.196	0.169	0.147	0.129	0.115	0.102	0.092	0.083	0.075	0.069	0.063	0.058
1.400	0.606	0.578	0.552	0.440	0.358	0.296	0.248	0.212	0.182	0.159	0.140	0.124	0.111	0.099	0.090	0.081	0.074	0.068	0.062
1.500	0.648	0.619	0.592	0.474	0.385	0.318	0.267	0.228	0.196	0.171	0.150	0.133	0.119	0.107	0.097	0.088	0.080	0.073	0.067
1.600	0.689	0.660	0.632	0.508	0.413	0.341	0.287	0.244	0.211	0.184	0.161	0.143	0.128	0.115	0.104	0.094	0.086	0.078	0.072
1.700	0.729	0.700	0.671	0.542	0.441	0.365	0.307	0.261	0.225	0.196	0.173	0.153	0.136	0.123	0.111	0.101	0.092	0.084	0.077
1.800	0.768	0.739	0.710	0.577	0.470	0.389	0.327	0.279	0.240	0.209	0.184	0.163	0.145	0.131	0.118	0.107	0.098	0.090	0.082
1.900	0.805	0.777	0.748	0.612	0.500	0.414	0.348	0.296	0.256	0.223	0.196	0.173	0.155	0.139	0.125	0.114	0.104	0.095	0.088
2.000	0.839	0.812	0.785	0.647	0.530	0.439	0.369	0.315	0.271	0.236	0.208	0.184	0.164	0.147	0.133	0.121	0.110	0.101	0.092
2.200	0.899	0.876	0.851	0.717	0.592	0.492	0.413	0.352	0.304	0.265	0.233	0.206	0.184	0.165	0.149	0.135	0.123	0.113	0.104
2.400	0.943	0.926	0.907	0.784	0.655	0.546	0.460	0.392	0.338	0.294	0.259	0.229	0.204	0.183	0.166	0.150	0.137	0.125	0.115
2.600	0.973	0.962	0.948	0.846	0.719	0.602	0.508	0.433	0.373	0.325	0.286	0.253	0.226	0.203	0.183	0.166	0.151	0.138	0.127
2.800	0.989	0.983	0.975	0.899	0.781	0.660	0.558	0.476	0.410	0.358	0.314	0.275	0.248	0.223	0.201	0.182	0.166	0.152	0.140
3.000	0.996	0.994	0.990	0.941	0.839	0.719	0.610	0.521	0.449	0.391	0.344	0.305	0.272	0.244	0.220	0.200	0.182	0.166	0.153
3.200	0.999	0.998	0.997	0.970	0.891	0.776	0.663	0.567	0.489	0.426	0.375	0.332	0.296	0.266	0.240	0.217	0.198	0.181	0.167
3.400	1.000	1.000	0.999	0.987	0.933	0.831	0.717	0.615	0.531	0.463	0.407	0.360	0.321	0.288	0.260	0.236	0.215	0.197	0.181
3.600	1.000	1.000	1.000	0.995	0.963	0.881	0.771	0.664	0.574	0.501	0.440	0.390	0.348	0.312	0.282	0.255	0.233	0.213	0.196
3.800	1.000	1.000	1.000	0.998	0.983	0.923	0.823	0.715	0.619	0.540	0.474	0.420	0.375	0.336	0.304	0.275	0.251	0.230	0.211
4.000	1.000	1.000	1.000	0.999	0.993	0.956	0.871	0.765	0.665	0.580	0.510	0.452	0.403	0.362	0.327	0.296	0.270	0.247	0.227
4.500	1.000	1.000	1.000	1.000	1.000	0.994	0.960	0.882	0.783	0.687	0.605	0.536	0.478	0.429	0.387	0.351	0.320	0.293	0.269
5.000	1.000	1.000	1.000	1.000	1.000	1.000	0.995	0.964	0.892	0.798	0.706	0.627	0.559	0.502	0.453	0.411	0.374	0.342	0.314
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.995	0.968	0.900	0.811	0.723	0.646	0.580	0.523				



(R AND A EXPRESSED IN SIGNAS)

**N-18**

A \ B	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.015	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.020	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.025	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.030	0.008	0.008	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004
0.035	0.011	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.009	0.009	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.005
0.040	0.014	0.014	0.014	0.014	0.014	0.013	0.013	0.013	0.012	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.008	0.007
0.045	0.018	0.018	0.018	0.018	0.017	0.017	0.017	0.016	0.015	0.015	0.014	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009
0.050	0.022	0.022	0.022	0.022	0.021	0.021	0.020	0.020	0.019	0.018	0.018	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.011
0.060	0.032	0.032	0.032	0.031	0.031	0.030	0.029	0.028	0.027	0.026	0.025	0.024	0.023	0.022	0.020	0.019	0.018	0.017	0.016
0.070	0.043	0.043	0.043	0.042	0.041	0.041	0.040	0.038	0.037	0.036	0.034	0.033	0.031	0.029	0.028	0.026	0.025	0.023	0.022
0.080	0.056	0.056	0.055	0.055	0.054	0.053	0.051	0.050	0.048	0.046	0.044	0.042	0.040	0.038	0.036	0.034	0.032	0.030	0.028
0.090	0.070	0.070	0.070	0.069	0.068	0.066	0.065	0.063	0.061	0.058	0.056	0.053	0.051	0.048	0.045	0.043	0.040	0.038	0.035
0.100	0.086	0.086	0.085	0.084	0.083	0.081	0.079	0.077	0.074	0.071	0.068	0.065	0.062	0.059	0.056	0.053	0.049	0.046	0.043
0.120	0.121	0.121	0.120	0.119	0.117	0.115	0.112	0.109	0.105	0.101	0.097	0.093	0.088	0.084	0.079	0.075	0.070	0.066	0.062
0.140	0.162	0.161	0.160	0.158	0.156	0.153	0.149	0.145	0.140	0.135	0.129	0.124	0.118	0.112	0.106	0.100	0.094	0.089	0.083
0.160	0.206	0.205	0.204	0.202	0.199	0.195	0.190	0.185	0.179	0.172	0.166	0.158	0.151	0.144	0.136	0.128	0.121	0.114	0.107
0.180	0.253	0.252	0.251	0.248	0.244	0.240	0.234	0.228	0.221	0.213	0.205	0.196	0.187	0.178	0.169	0.159	0.150	0.141	0.133
0.200	0.302	0.302	0.300	0.297	0.292	0.287	0.281	0.273	0.265	0.256	0.246	0.236	0.225	0.215	0.204	0.193	0.182	0.171	0.161
0.250	0.430	0.429	0.427	0.423	0.418	0.411	0.402	0.392	0.382	0.370	0.357	0.343	0.328	0.313	0.298	0.283	0.268	0.253	0.238
0.300	0.555	0.554	0.552	0.547	0.541	0.533	0.523	0.512	0.499	0.485	0.469	0.453	0.435	0.417	0.398	0.379	0.359	0.340	0.321
0.350	0.668	0.667	0.664	0.660	0.653	0.645	0.635	0.623	0.609	0.594	0.577	0.559	0.539	0.518	0.497	0.474	0.451	0.428	0.405
0.400	0.763	0.762	0.760	0.755	0.749	0.741	0.732	0.720	0.707	0.691	0.674	0.655	0.635	0.613	0.589	0.565	0.540	0.514	0.488
0.450	0.838	0.838	0.835	0.832	0.826	0.819	0.811	0.800	0.788	0.774	0.757	0.739	0.719	0.697	0.673	0.648	0.621	0.594	0.566
0.500	0.894	0.894	0.892	0.889	0.885	0.879	0.872	0.863	0.852	0.840	0.825	0.808	0.789	0.769	0.746	0.721	0.694	0.666	0.637
0.550	0.934	0.934	0.932	0.930	0.927	0.922	0.917	0.909	0.901	0.890	0.878	0.863	0.847	0.828	0.806	0.783	0.757	0.730	0.701
0.600	0.961	0.961	0.960	0.958	0.955	0.952	0.948	0.942	0.936	0.927	0.917	0.905	0.891	0.875	0.856	0.834	0.811	0.785	0.757
0.650	0.978	0.977	0.977	0.976	0.974	0.972	0.969	0.965	0.960	0.954	0.946	0.936	0.925	0.911	0.895	0.876	0.854	0.830	0.804
0.700	0.988	0.988	0.987	0.987	0.985	0.984	0.982	0.979	0.976	0.971	0.966	0.958	0.949	0.938	0.925	0.909	0.890	0.868	0.844
0.750	0.994	0.994	0.993	0.993	0.992	0.991	0.990	0.988	0.986	0.983	0.979	0.973	0.967	0.958	0.947	0.934	0.918	0.899	0.878
0.800	0.997	0.997	0.997	0.996	0.996	0.995	0.995	0.994	0.992	0.990	0.987	0.983	0.978	0.972	0.964	0.953	0.940	0.924	0.905
0.850	0.998	0.998	0.998	0.998	0.998	0.998	0.997	0.997	0.996	0.994	0.993	0.990	0.987	0.982	0.975	0.967	0.957	0.943	0.927
0.900	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.998	0.994	0.992	0.988	0.984	0.977	0.969	0.958	0.945
0.950	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.998	0.997	0.995	0.993	0.989	0.985	0.978	0.970	0.959
1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.997	0.996	0.993	0.990	0.985	0.978	0.970
1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.997	0.996	0.993	0.990	0.984
1.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.995	0.992
1.300	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.997
1.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
1.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				



## (18 AND A EXPRESSED IN SIGMAS)

**N-10**

A \ B	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.025	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.035	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
0.040	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.045	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003
0.050	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003
0.060	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005
0.070	0.020	0.019	0.018	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009	0.008	0.008	0.008	0.007	0.007	0.006
0.080	0.026	0.025	0.023	0.021	0.020	0.019	0.017	0.016	0.015	0.014	0.013	0.013	0.012	0.011	0.010	0.010	0.009	0.009	0.008
0.090	0.033	0.031	0.029	0.027	0.025	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010
0.100	0.041	0.038	0.035	0.033	0.031	0.029	0.027	0.025	0.024	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.014	0.013
0.120	0.058	0.054	0.051	0.047	0.044	0.041	0.038	0.036	0.034	0.031	0.029	0.028	0.026	0.024	0.023	0.022	0.021	0.019	0.018
0.140	0.078	0.073	0.068	0.064	0.059	0.055	0.052	0.048	0.045	0.042	0.040	0.037	0.035	0.033	0.031	0.029	0.028	0.026	0.025
0.160	0.100	0.094	0.088	0.082	0.076	0.071	0.067	0.062	0.058	0.055	0.051	0.048	0.045	0.042	0.040	0.038	0.036	0.034	0.032
0.180	0.124	0.117	0.109	0.102	0.095	0.089	0.083	0.078	0.073	0.068	0.064	0.060	0.056	0.053	0.050	0.047	0.044	0.042	0.040
0.200	0.151	0.141	0.132	0.124	0.116	0.108	0.101	0.094	0.088	0.083	0.078	0.073	0.068	0.064	0.061	0.057	0.054	0.051	0.048
0.250	0.223	0.210	0.196	0.184	0.172	0.161	0.151	0.141	0.132	0.124	0.116	0.109	0.102	0.096	0.091	0.086	0.081	0.077	0.073
0.300	0.302	0.284	0.267	0.250	0.234	0.219	0.205	0.192	0.180	0.169	0.159	0.149	0.140	0.132	0.124	0.117	0.111	0.105	0.099
0.350	0.383	0.361	0.339	0.319	0.299	0.281	0.263	0.247	0.231	0.217	0.204	0.191	0.180	0.169	0.160	0.151	0.142	0.135	0.128
0.400	0.462	0.437	0.412	0.388	0.365	0.342	0.321	0.302	0.283	0.266	0.250	0.235	0.221	0.208	0.196	0.185	0.175	0.165	0.157
0.450	0.538	0.510	0.482	0.455	0.428	0.403	0.379	0.356	0.335	0.314	0.295	0.278	0.262	0.246	0.232	0.219	0.207	0.196	0.186
0.500	0.608	0.578	0.548	0.518	0.489	0.462	0.435	0.409	0.385	0.362	0.340	0.320	0.302	0.284	0.268	0.253	0.239	0.227	0.215
0.550	0.671	0.640	0.609	0.578	0.547	0.517	0.488	0.460	0.433	0.408	0.384	0.362	0.341	0.321	0.303	0.286	0.271	0.256	0.243
0.600	0.727	0.696	0.664	0.632	0.600	0.568	0.538	0.508	0.479	0.452	0.426	0.401	0.378	0.357	0.337	0.318	0.301	0.285	0.270
0.650	0.776	0.743	0.714	0.682	0.649	0.616	0.584	0.553	0.522	0.493	0.465	0.439	0.415	0.391	0.370	0.349	0.331	0.313	0.297
0.700	0.818	0.789	0.758	0.727	0.694	0.661	0.628	0.595	0.563	0.533	0.504	0.476	0.449	0.424	0.401	0.379	0.359	0.340	0.323
0.750	0.853	0.826	0.797	0.767	0.734	0.701	0.668	0.635	0.602	0.571	0.540	0.511	0.483	0.456	0.432	0.409	0.387	0.367	0.348
0.800	0.883	0.859	0.831	0.802	0.771	0.739	0.705	0.672	0.639	0.606	0.575	0.544	0.515	0.487	0.461	0.437	0.414	0.392	0.372
0.850	0.908	0.886	0.861	0.834	0.804	0.772	0.740	0.707	0.673	0.640	0.608	0.576	0.546	0.517	0.490	0.464	0.440	0.417	0.396
0.900	0.929	0.909	0.886	0.861	0.833	0.803	0.772	0.739	0.706	0.672	0.640	0.607	0.576	0.547	0.518	0.491	0.466	0.442	0.420
0.950	0.945	0.928	0.908	0.885	0.859	0.831	0.801	0.769	0.736	0.703	0.670	0.637	0.606	0.575	0.546	0.518	0.491	0.466	0.443
1.000	0.958	0.944	0.927	0.906	0.882	0.856	0.827	0.797	0.765	0.732	0.699	0.666	0.634	0.603	0.573	0.544	0.516	0.490	0.466
1.100	0.977	0.967	0.955	0.939	0.920	0.898	0.873	0.846	0.816	0.785	0.753	0.721	0.688	0.656	0.625	0.594	0.565	0.538	0.512
1.200	0.988	0.982	0.973	0.962	0.948	0.931	0.910	0.887	0.860	0.832	0.802	0.770	0.739	0.706	0.675	0.644	0.613	0.584	0.556
1.300	0.994	0.990	0.985	0.978	0.968	0.955	0.939	0.920	0.897	0.872	0.845	0.816	0.785	0.754	0.722	0.691	0.660	0.630	0.601
1.400	0.997	0.995	0.992	0.988	0.981	0.972	0.960	0.945	0.927	0.906	0.882	0.856	0.827	0.798	0.767	0.736	0.705	0.674	0.645
1.500	0.999	0.998	0.996	0.994	0.989	0.983	0.975	0.964	0.950	0.933	0.913	0.890	0.865	0.838	0.809	0.779	0.748	0.718	0.687
1.600	1.000	0.999	0.998	0.997	0.994	0.991	0.985	0.978	0.968	0.955	0.939	0.920	0.898	0.873	0.847	0.818	0.789	0.759	0.729
1.700	1.000	1.000	0.999	0.999	0.997	0.997	0.995	0.992	0.987	0.980	0.971	0.958	0.943	0.925	0.904	0.880	0.855	0.827	0.798
1.800	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.993	0.988	0.982	0.973	0.962	0.947	0.930	0.909	0.887	0.862	0.835	0.807
1.900	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.996	0.994	0.989	0.983	0.975	0.964	0.950	0.934	0.914	0.892	0.868	0.842
2.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.994	0.990	0.985	0.977	0.967	0.953	0.937	0.919	0.897	0.874
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.995	0.992	0.987	0.980	0.971	0.959	0.944
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.996	0.993	0.988	0.982	0.974
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.996	0.994	0.988
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.994
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N=18

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.035	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.040	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.045	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.050	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.060	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.070	0.006	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.080	0.008	0.007	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.090	0.010	0.009	0.009	0.007	0.006	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.100	0.012	0.012	0.011	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.120	0.017	0.017	0.016	0.012	0.010	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.140	0.023	0.022	0.021	0.017	0.014	0.011	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002
0.160	0.030	0.029	0.027	0.022	0.018	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003
0.180	0.038	0.036	0.034	0.027	0.022	0.018	0.015	0.013	0.011	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004
0.200	0.046	0.044	0.042	0.033	0.027	0.022	0.018	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.005
0.250	0.069	0.065	0.062	0.049	0.040	0.033	0.028	0.024	0.020	0.018	0.016	0.014	0.012	0.011	0.010	0.009	0.008	0.008	0.007
0.300	0.094	0.089	0.085	0.067	0.054	0.045	0.038	0.032	0.028	0.024	0.021	0.019	0.017	0.015	0.014	0.012	0.011	0.010	0.009
0.350	0.121	0.115	0.109	0.086	0.070	0.058	0.049	0.041	0.036	0.031	0.027	0.024	0.022	0.019	0.018	0.016	0.014	0.013	0.012
0.400	0.149	0.141	0.134	0.106	0.086	0.071	0.060	0.051	0.044	0.038	0.034	0.030	0.027	0.024	0.022	0.020	0.018	0.016	0.015
0.450	0.176	0.168	0.159	0.126	0.102	0.084	0.071	0.060	0.052	0.045	0.040	0.035	0.032	0.028	0.026	0.023	0.021	0.019	0.018
0.500	0.204	0.194	0.184	0.146	0.118	0.098	0.082	0.070	0.060	0.052	0.046	0.041	0.036	0.033	0.030	0.027	0.024	0.022	0.020
0.550	0.231	0.219	0.208	0.165	0.133	0.110	0.093	0.079	0.068	0.059	0.052	0.046	0.041	0.037	0.033	0.030	0.028	0.025	0.023
0.600	0.257	0.244	0.232	0.183	0.149	0.123	0.103	0.088	0.076	0.066	0.058	0.051	0.046	0.041	0.037	0.034	0.031	0.028	0.026
0.650	0.282	0.268	0.255	0.201	0.163	0.135	0.113	0.097	0.083	0.073	0.064	0.057	0.050	0.045	0.041	0.037	0.034	0.031	0.028
0.700	0.306	0.291	0.277	0.219	0.177	0.147	0.123	0.105	0.091	0.079	0.069	0.061	0.055	0.049	0.044	0.040	0.037	0.034	0.031
0.750	0.330	0.314	0.298	0.236	0.191	0.156	0.133	0.113	0.098	0.085	0.075	0.066	0.059	0.053	0.048	0.043	0.040	0.036	0.033
0.800	0.353	0.336	0.320	0.253	0.205	0.169	0.142	0.121	0.105	0.091	0.080	0.071	0.063	0.057	0.051	0.047	0.042	0.039	0.036
0.850	0.376	0.358	0.340	0.270	0.218	0.180	0.152	0.129	0.112	0.097	0.085	0.076	0.067	0.061	0.055	0.050	0.045	0.041	0.038
0.900	0.399	0.379	0.361	0.286	0.232	0.191	0.161	0.137	0.118	0.103	0.091	0.080	0.072	0.066	0.060	0.053	0.048	0.044	0.040
0.950	0.421	0.400	0.381	0.302	0.245	0.202	0.170	0.145	0.125	0.109	0.096	0.085	0.076	0.068	0.061	0.056	0.051	0.046	0.043
1.000	0.443	0.422	0.401	0.318	0.258	0.213	0.179	0.153	0.132	0.115	0.101	0.089	0.080	0.072	0.065	0.059	0.053	0.049	0.045
1.100	0.487	0.463	0.441	0.350	0.284	0.235	0.197	0.168	0.145	0.126	0.111	0.098	0.088	0.079	0.071	0.063	0.056	0.051	0.046
1.200	0.530	0.505	0.481	0.383	0.310	0.256	0.215	0.184	0.158	0.138	0.121	0.108	0.096	0.086	0.078	0.070	0.064	0.059	0.054
1.300	0.573	0.546	0.521	0.415	0.337	0.278	0.234	0.195	0.172	0.150	0.132	0.117	0.104	0.094	0.084	0.077	0.070	0.064	0.059
1.400	0.616	0.588	0.561	0.448	0.364	0.301	0.253	0.215	0.186	0.162	0.142	0.126	0.113	0.101	0.091	0.083	0.075	0.069	0.063
1.500	0.658	0.629	0.602	0.482	0.391	0.324	0.272	0.232	0.200	0.174	0.153	0.136	0.121	0.109	0.098	0.089	0.081	0.074	0.068
1.600	0.699	0.670	0.641	0.516	0.419	0.347	0.292	0.248	0.214	0.187	0.164	0.145	0.130	0.116	0.105	0.096	0.087	0.080	0.073
1.700	0.739	0.710	0.681	0.550	0.448	0.371	0.312	0.265	0.229	0.199	0.175	0.155	0.139	0.124	0.112	0.102	0.093	0.085	0.078
1.800	0.778	0.749	0.720	0.585	0.477	0.395	0.332	0.283	0.244	0.213	0.187	0.166	0.148	0.133	0.120	0.109	0.099	0.091	0.083
1.900	0.814	0.786	0.758	0.620	0.507	0.420	0.353	0.301	0.259	0.226	0.199	0.176	0.157	0.141	0.127	0.115	0.105	0.096	0.089
2.000	0.848	0.822	0.794	0.656	0.538	0.445	0.375	0.319	0.275	0.240	0.211	0.187	0.167	0.149	0.135	0.123	0.112	0.102	0.094
2.200	0.906	0.884	0.860	0.726	0.600	0.498	0.419	0.357	0.308	0.268	0.236	0.209	0.186	0.167	0.151	0.137	0.125	0.114	0.105
2.400	0.949	0.932	0.914	0.793	0.663	0.553	0.465	0.397	0.342	0.298	0.262	0.232	0.207	0.186	0.168	0.152	0.139	0.127	0.116
2.600	0.976	0.966	0.953	0.854	0.727	0.610	0.514	0.438	0.378	0.329	0.289	0.256	0.229	0.205	0.185	0.168	0.153	0.140	0.129
2.800	0.991	0.986	0.978	0.906	0.789	0.668	0.564	0.481	0.415	0.362	0.318	0.282	0.251	0.225	0.203	0.185	0.168	0.154	0.141
3.000	0.997	0.995	0.992	0.946	0.847	0.726	0.616	0.526	0.454	0.395	0.348	0.308	0.275	0.247	0.222	0.202	0.184	0.168	0.155
3.200	0.999	0.999	0.997	0.973	0.897	0.784	0.670	0.573	0.494	0.431	0.379	0.335	0.299	0.268	0.242	0.220	0.200	0.183	0.168
3.400	1.000	1.000	0.999	0.989	0.938	0.838	0.724	0.621	0.536	0.467	0.411	0.364	0.325	0.291	0.263	0.238	0.217	0.199	0.183
3.600	1.000	1.000	1.000	0.996	0.967	0.887	0.778	0.671	0.580	0.505	0.444	0.394	0.351	0.315	0.284	0.258	0.235	0.215	0.197
3.800	1.000	1.000	1.000	0.998	0.985	0.929	0.829	0.721	0.625	0.545	0.479	0.424	0.378	0.340	0.307	0.278	0.253	0.232	0.213
4.000	1.000	1.000	1.000	1.000	0.994	0.960	0.877	0.771	0.671	0.586	0.515	0.456	0.407	0.365	0.330	0.299	0.272	0.249	0.229
4.500	1.000	1.000	1.000	1.000	1.000	0.995	0.964	0.888	0.789	0.693	0.610	0.540	0.482	0.433	0.390	0.354	0.323	0.295	0.271
5.000	1.000	1.000	1.000	1.000	1.000	1.000	0.995	0.968	0.897	0.804	0.712	0.631	0.563	0.506	0.456	0.414	0.377	0.345	0.317
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.995	0.971	0.905	0.816	0.728	0.651	0.584	0.527				



**N=19**

4



**H-19**

85



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N=19

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.025	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.030	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.035	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.040	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.045	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
0.050	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.060	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.070	0.006	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.080	0.008	0.008	0.008	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.090	0.010	0.010	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001
0.100	0.013	0.012	0.012	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001
0.120	0.018	0.017	0.017	0.013	0.011	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.140	0.025	0.023	0.022	0.018	0.014	0.012	0.010	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002
0.160	0.032	0.030	0.029	0.023	0.018	0.015	0.013	0.011	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003
0.180	0.040	0.038	0.036	0.028	0.023	0.019	0.016	0.014	0.012	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004
0.200	0.048	0.046	0.044	0.034	0.028	0.023	0.019	0.017	0.014	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005
0.250	0.072	0.069	0.065	0.051	0.042	0.034	0.029	0.025	0.021	0.019	0.018	0.014	0.013	0.012	0.010	0.009	0.009	0.008	0.007
0.300	0.098	0.093	0.089	0.070	0.057	0.047	0.034	0.029	0.025	0.022	0.020	0.018	0.016	0.014	0.013	0.012	0.011	0.011	0.010
0.350	0.126	0.120	0.114	0.090	0.073	0.060	0.051	0.043	0.037	0.032	0.029	0.025	0.023	0.020	0.018	0.017	0.015	0.014	0.013
0.400	0.155	0.147	0.140	0.110	0.089	0.074	0.062	0.053	0.046	0.040	0.035	0.031	0.028	0.025	0.022	0.020	0.018	0.017	0.016
0.450	0.183	0.174	0.165	0.131	0.106	0.088	0.074	0.063	0.054	0.047	0.041	0.037	0.033	0.029	0.026	0.024	0.022	0.020	0.018
0.500	0.211	0.200	0.190	0.151	0.122	0.101	0.085	0.072	0.062	0.054	0.048	0.042	0.038	0.034	0.031	0.028	0.025	0.023	0.021
0.550	0.238	0.226	0.215	0.170	0.138	0.114	0.096	0.082	0.070	0.061	0.054	0.048	0.043	0.038	0.034	0.031	0.028	0.026	0.024
0.600	0.264	0.251	0.239	0.189	0.153	0.126	0.106	0.091	0.078	0.068	0.060	0.053	0.047	0.042	0.038	0.035	0.032	0.029	0.027
0.650	0.290	0.275	0.262	0.207	0.168	0.139	0.117	0.099	0.086	0.075	0.066	0.058	0.052	0.047	0.042	0.038	0.035	0.032	0.029
0.700	0.314	0.299	0.284	0.225	0.182	0.151	0.126	0.108	0.093	0.081	0.071	0.063	0.056	0.051	0.046	0.041	0.038	0.034	0.032
0.750	0.338	0.322	0.306	0.242	0.196	0.162	0.136	0.116	0.100	0.087	0.077	0.068	0.061	0.054	0.049	0.045	0.041	0.037	0.034
0.800	0.362	0.344	0.327	0.259	0.210	0.173	0.146	0.124	0.107	0.093	0.082	0.073	0.065	0.058	0.053	0.048	0.043	0.040	0.036
0.850	0.385	0.366	0.348	0.276	0.223	0.185	0.155	0.132	0.114	0.099	0.087	0.077	0.069	0.062	0.056	0.051	0.046	0.042	0.039
0.900	0.407	0.387	0.369	0.292	0.237	0.196	0.164	0.140	0.121	0.105	0.093	0.082	0.073	0.066	0.059	0.054	0.049	0.045	0.041
0.950	0.430	0.409	0.389	0.308	0.250	0.207	0.174	0.148	0.128	0.111	0.098	0.087	0.077	0.069	0.063	0.057	0.052	0.047	0.043
1.000	0.452	0.430	0.409	0.325	0.263	0.217	0.183	0.156	0.134	0.117	0.103	0.091	0.081	0.073	0.066	0.060	0.054	0.050	0.046
1.100	0.496	0.472	0.450	0.357	0.289	0.239	0.201	0.171	0.148	0.129	0.113	0.100	0.089	0.080	0.072	0.066	0.060	0.055	0.050
1.200	0.539	0.514	0.490	0.389	0.316	0.261	0.219	0.187	0.161	0.140	0.124	0.110	0.098	0.088	0.079	0.072	0.065	0.060	0.055
1.300	0.582	0.556	0.530	0.422	0.343	0.283	0.238	0.203	0.175	0.152	0.134	0.119	0.106	0.095	0.086	0.078	0.071	0.065	0.060
1.400	0.625	0.597	0.570	0.456	0.370	0.306	0.257	0.219	0.189	0.164	0.145	0.128	0.115	0.103	0.093	0.084	0.077	0.070	0.064
1.500	0.667	0.639	0.611	0.489	0.398	0.329	0.276	0.235	0.203	0.177	0.155	0.138	0.123	0.111	0.100	0.091	0.082	0.075	0.069
1.600	0.709	0.679	0.651	0.524	0.426	0.352	0.296	0.252	0.217	0.189	0.166	0.148	0.132	0.118	0.107	0.097	0.088	0.081	0.074
1.700	0.749	0.719	0.690	0.558	0.455	0.376	0.316	0.269	0.232	0.202	0.178	0.158	0.141	0.126	0.114	0.104	0.095	0.086	0.079
1.800	0.787	0.758	0.729	0.593	0.484	0.401	0.337	0.287	0.247	0.216	0.189	0.168	0.150	0.135	0.121	0.110	0.100	0.092	0.085
1.900	0.823	0.795	0.767	0.629	0.514	0.426	0.358	0.305	0.263	0.229	0.201	0.178	0.159	0.143	0.129	0.117	0.107	0.098	0.090
2.000	0.856	0.830	0.802	0.664	0.545	0.451	0.379	0.323	0.279	0.243	0.213	0.189	0.169	0.151	0.137	0.124	0.113	0.103	0.095
2.200	0.910	0.891	0.867	0.734	0.607	0.504	0.424	0.361	0.312	0.272	0.239	0.211	0.189	0.169	0.153	0.139	0.126	0.116	0.106
2.400	0.954	0.938	0.920	0.801	0.671	0.559	0.471	0.401	0.346	0.302	0.265	0.235	0.209	0.188	0.170	0.154	0.140	0.128	0.118
2.600	0.979	0.970	0.958	0.861	0.735	0.616	0.520	0.443	0.382	0.333	0.293	0.259	0.231	0.207	0.187	0.170	0.155	0.142	0.130
2.800	0.992	0.988	0.981	0.912	0.796	0.675	0.570	0.487	0.420	0.366	0.321	0.285	0.254	0.228	0.206	0.187	0.170	0.156	0.143
3.000	0.998	0.996	0.993	0.951	0.854	0.733	0.623	0.532	0.459	0.400	0.351	0.311	0.277	0.249	0.225	0.204	0.186	0.170	0.156
3.200	1.000	0.999	0.998	0.976	0.903	0.791	0.676	0.579	0.499	0.435	0.382	0.339	0.302	0.271	0.245	0.222	0.202	0.185	0.170
3.400	1.000	1.000	1.000	0.990	0.943	0.845	0.730	0.627	0.541	0.472	0.415	0.367	0.328	0.294	0.265	0.241	0.219	0.201	0.184
3.600	1.000	1.000	1.000	0.995	0.970	0.893	0.784	0.677	0.585	0.510	0.448	0.397	0.354	0.318	0.287	0.260	0.237	0.217	0.199
3.800	1.000	1.000	1.000	0.999	0.997	0.933	0.836	0.727	0.630	0.550	0.483	0.428	0.382	0.343	0.309	0.280	0.256	0.234	0.215
4.000	1.000	1.000	1.000	1.000	0.995	0.963	0.883	0.778	0.677	0.591	0.519	0.460	0.410	0.368	0.332	0.301	0.275	0.251	0.231
4.500	1.000	1.000	1.000	1.000	1.000	0.996	0.967	0.894	0.794	0.698	0.615	0.545	0.486	0.436	0.393	0.357	0.325	0.298	0.273
5.000	1.000	1.000	1.000	1.000	1.000	1.000	0.995	0.971	0.902	0.809	0.717	0.636	0.567	0.509	0.460	0.417	0.380	0.348	0.319
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.995	0.973	0.910	0.821	0.733	0.655	0.588	0.531				



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

**N=20**

A	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
0.015	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.020	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002
0.025	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.003
0.030	0.009	0.009	0.009	0.009	0.009	0.009	0.008	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004
0.035	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.010	0.010	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006
0.040	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.014	0.014	0.013	0.013	0.012	0.011	0.011	0.010	0.010	0.009	0.008	0.008
0.045	0.020	0.020	0.020	0.020	0.019	0.019	0.018	0.018	0.017	0.017	0.016	0.015	0.014	0.014	0.013	0.012	0.011	0.011	0.010
0.050	0.025	0.025	0.024	0.024	0.024	0.023	0.023	0.022	0.021	0.020	0.019	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012
0.060	0.035	0.035	0.035	0.035	0.034	0.033	0.032	0.031	0.030	0.029	0.028	0.027	0.025	0.024	0.023	0.021	0.020	0.019	0.018
0.070	0.048	0.048	0.047	0.047	0.046	0.045	0.044	0.043	0.041	0.039	0.038	0.036	0.034	0.033	0.031	0.029	0.027	0.026	0.024
0.080	0.062	0.062	0.061	0.061	0.060	0.058	0.057	0.055	0.053	0.051	0.049	0.047	0.045	0.042	0.040	0.038	0.035	0.033	0.031
0.090	0.078	0.078	0.077	0.076	0.075	0.073	0.071	0.069	0.067	0.064	0.062	0.059	0.056	0.053	0.050	0.047	0.045	0.042	0.039
0.100	0.095	0.095	0.094	0.093	0.092	0.090	0.087	0.085	0.082	0.079	0.076	0.072	0.069	0.065	0.062	0.058	0.055	0.051	0.048
0.120	0.134	0.134	0.133	0.131	0.129	0.127	0.123	0.120	0.116	0.112	0.107	0.102	0.097	0.092	0.087	0.083	0.078	0.073	0.068
0.140	0.178	0.178	0.176	0.174	0.172	0.168	0.164	0.160	0.154	0.149	0.143	0.137	0.130	0.124	0.117	0.111	0.104	0.098	0.092
0.160	0.226	0.225	0.224	0.221	0.218	0.214	0.209	0.203	0.197	0.190	0.182	0.174	0.166	0.158	0.150	0.142	0.133	0.125	0.118
0.180	0.277	0.276	0.274	0.272	0.268	0.263	0.257	0.250	0.242	0.234	0.225	0.215	0.205	0.195	0.185	0.175	0.165	0.156	0.146
0.200	0.330	0.329	0.327	0.324	0.319	0.313	0.306	0.298	0.290	0.286	0.269	0.258	0.247	0.235	0.223	0.211	0.200	0.188	0.177
0.250	0.465	0.464	0.461	0.457	0.452	0.444	0.435	0.425	0.414	0.401	0.387	0.372	0.357	0.341	0.325	0.308	0.292	0.276	0.260
0.300	0.593	0.593	0.590	0.585	0.579	0.571	0.561	0.549	0.536	0.521	0.505	0.488	0.469	0.450	0.430	0.410	0.389	0.368	0.349
0.350	0.706	0.705	0.703	0.698	0.692	0.684	0.674	0.662	0.648	0.633	0.615	0.597	0.576	0.555	0.532	0.509	0.485	0.461	0.437
0.400	0.798	0.797	0.795	0.791	0.785	0.777	0.768	0.757	0.744	0.729	0.712	0.693	0.673	0.650	0.627	0.602	0.576	0.549	0.522
0.450	0.868	0.867	0.865	0.862	0.857	0.851	0.843	0.833	0.821	0.808	0.792	0.774	0.755	0.733	0.710	0.684	0.658	0.630	0.601
0.500	0.918	0.917	0.916	0.913	0.909	0.904	0.898	0.890	0.880	0.869	0.855	0.840	0.822	0.802	0.780	0.755	0.729	0.701	0.672
0.550	0.951	0.951	0.950	0.948	0.945	0.941	0.937	0.930	0.923	0.914	0.903	0.890	0.874	0.857	0.837	0.814	0.790	0.763	0.734
0.600	0.973	0.972	0.972	0.970	0.968	0.966	0.962	0.958	0.952	0.945	0.937	0.926	0.914	0.899	0.882	0.862	0.839	0.815	0.787
0.650	0.985	0.985	0.985	0.984	0.983	0.981	0.979	0.976	0.972	0.967	0.960	0.952	0.943	0.931	0.916	0.899	0.880	0.857	0.832
0.700	0.993	0.992	0.992	0.992	0.991	0.990	0.988	0.986	0.984	0.980	0.976	0.970	0.963	0.954	0.942	0.928	0.911	0.892	0.869
0.750	0.996	0.996	0.996	0.996	0.995	0.995	0.994	0.993	0.991	0.989	0.986	0.982	0.976	0.969	0.962	0.949	0.936	0.919	0.899
0.800	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998	0.998
0.850	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999	0.999
0.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
0.950	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.300	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.700	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1.900	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				



(R AND A EXPRESSED IN SIGMAS)

**N=20**

	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.020	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.025	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.030	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001
0.035	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
0.040	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.002	0.002
0.045	0.009	0.009	0.008	0.008	0.008	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003
0.050	0.012	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.004	0.004	0.004
0.060	0.017	0.015	0.014	0.013	0.013	0.012	0.011	0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.006
0.070	0.022	0.021	0.020	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.011	0.011	0.010	0.009	0.009	0.008	0.008	0.007	0.007
0.080	0.029	0.027	0.025	0.024	0.022	0.021	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012	0.012	0.011	0.010	0.010	0.009
0.090	0.037	0.034	0.032	0.030	0.028	0.026	0.024	0.023	0.021	0.020	0.019	0.017	0.016	0.015	0.015	0.014	0.013	0.012	0.012
0.100	0.045	0.042	0.039	0.037	0.034	0.032	0.030	0.028	0.026	0.024	0.023	0.021	0.020	0.019	0.018	0.017	0.016	0.015	0.014
0.120	0.064	0.060	0.056	0.052	0.049	0.046	0.043	0.040	0.037	0.035	0.033	0.031	0.029	0.027	0.025	0.024	0.023	0.021	0.020
0.140	0.086	0.080	0.075	0.070	0.064	0.061	0.057	0.053	0.050	0.047	0.044	0.041	0.039	0.036	0.034	0.032	0.031	0.029	0.027
0.160	0.110	0.103	0.097	0.090	0.084	0.079	0.074	0.069	0.064	0.060	0.057	0.053	0.050	0.047	0.044	0.042	0.039	0.037	0.035
0.180	0.137	0.128	0.120	0.112	0.105	0.098	0.092	0.086	0.080	0.075	0.070	0.066	0.062	0.058	0.055	0.052	0.049	0.046	0.044
0.200	0.166	0.155	0.145	0.136	0.127	0.119	0.111	0.104	0.097	0.091	0.085	0.080	0.075	0.071	0.067	0.063	0.060	0.056	0.053
0.250	0.244	0.229	0.215	0.201	0.188	0.176	0.165	0.154	0.145	0.135	0.127	0.119	0.112	0.105	0.099	0.094	0.089	0.084	0.079
0.300	0.328	0.309	0.290	0.272	0.255	0.239	0.224	0.210	0.196	0.184	0.173	0.162	0.153	0.144	0.135	0.128	0.121	0.114	0.108
0.350	0.413	0.389	0.367	0.345	0.324	0.304	0.285	0.267	0.250	0.235	0.221	0.207	0.195	0.184	0.173	0.163	0.154	0.146	0.138
0.400	0.495	0.468	0.442	0.417	0.392	0.368	0.346	0.325	0.305	0.286	0.269	0.255	0.238	0.224	0.211	0.199	0.188	0.178	0.169
0.450	0.572	0.543	0.514	0.485	0.458	0.431	0.406	0.381	0.358	0.337	0.317	0.298	0.280	0.264	0.249	0.235	0.222	0.211	0.199
0.500	0.642	0.611	0.581	0.550	0.520	0.491	0.463	0.436	0.410	0.386	0.363	0.342	0.322	0.303	0.286	0.270	0.256	0.242	0.229
0.550	0.704	0.673	0.641	0.609	0.578	0.547	0.516	0.487	0.459	0.432	0.407	0.384	0.362	0.341	0.322	0.304	0.288	0.272	0.258
0.600	0.758	0.728	0.696	0.663	0.631	0.596	0.566	0.535	0.505	0.477	0.450	0.424	0.400	0.378	0.357	0.337	0.319	0.302	0.286
0.650	0.805	0.775	0.744	0.712	0.679	0.646	0.613	0.580	0.549	0.519	0.490	0.462	0.437	0.412	0.390	0.368	0.349	0.330	0.313
0.700	0.844	0.816	0.786	0.755	0.722	0.689	0.656	0.623	0.590	0.558	0.528	0.499	0.472	0.446	0.422	0.399	0.377	0.358	0.339
0.750	0.877	0.851	0.823	0.793	0.762	0.729	0.695	0.662	0.628	0.596	0.564	0.534	0.505	0.478	0.452	0.428	0.405	0.384	0.365
0.800	0.904	0.881	0.855	0.827	0.797	0.765	0.732	0.698	0.665	0.631	0.599	0.568	0.538	0.508	0.482	0.457	0.433	0.410	0.389
0.850	0.926	0.906	0.882	0.856	0.828	0.797	0.765	0.732	0.698	0.665	0.632	0.600	0.569	0.539	0.511	0.484	0.459	0.436	0.413
0.900	0.943	0.926	0.905	0.882	0.855	0.826	0.796	0.763	0.730	0.697	0.664	0.631	0.599	0.569	0.539	0.512	0.485	0.461	0.437
0.950	0.957	0.943	0.925	0.904	0.880	0.853	0.823	0.792	0.760	0.727	0.694	0.661	0.628	0.597	0.567	0.538	0.511	0.485	0.461
1.000	0.968	0.956	0.941	0.922	0.901	0.876	0.849	0.819	0.788	0.755	0.722	0.689	0.657	0.625	0.594	0.564	0.536	0.509	0.484
1.100	0.983	0.976	0.965	0.951	0.935	0.915	0.891	0.865	0.837	0.807	0.775	0.743	0.710	0.678	0.646	0.615	0.585	0.557	0.530
1.200	0.992	0.987	0.980	0.971	0.959	0.946	0.925	0.903	0.879	0.851	0.822	0.791	0.760	0.728	0.696	0.664	0.633	0.604	0.575
1.300	0.996	0.994	0.990	0.984	0.976	0.965	0.951	0.933	0.913	0.889	0.863	0.835	0.805	0.774	0.743	0.711	0.680	0.649	0.620
1.400	0.998	0.997	0.995	0.991	0.986	0.979	0.969	0.956	0.940	0.921	0.898	0.873	0.846	0.817	0.787	0.756	0.725	0.694	0.664
1.500	0.999	0.999	0.998	0.996	0.993	0.988	0.981	0.972	0.960	0.945	0.927	0.906	0.882	0.855	0.827	0.798	0.767	0.737	0.706
1.600	1.000	1.000	0.999	0.998	0.996	0.994	0.990	0.984	0.975	0.964	0.950	0.933	0.912	0.889	0.864	0.836	0.807	0.778	0.748
1.700	1.000	1.000	1.000	0.999	0.997	0.994	0.990	0.984	0.975	0.967	0.954	0.937	0.918	0.896	0.871	0.844	0.816	0.787	0.757
1.800	1.000	1.000	1.000	1.000	0.999	0.999	0.997	0.995	0.992	0.987	0.979	0.970	0.957	0.941	0.923	0.901	0.877	0.852	0.824
1.900	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.999	0.998	0.996	0.993	0.988	0.981	0.972	0.960	0.945	0.927	0.906	0.883
2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.996	0.993	0.989	0.982	0.974	0.962	0.948	0.931	0.911
2.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.997	0.994	0.990	0.985	0.977	0.967	0.954
2.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.997	0.995	0.992	0.987	0.979	0.970
2.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.999	0.998	0.996	0.993	0.988
2.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	0.998	0.996
3.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999
3.200	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3.800	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5.500	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.0			



EXPECTED COVERAGE OF A CIRCULAR UNIFORM TARGET OF RADIUS R BY N WEAPONS OF LETHAL RADIUS A  
(R AND A EXPRESSED IN SIGMAS)

N=20

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.05	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.20	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.25	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.30	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.35	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.40	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.45	0.003	0.003	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
0.50	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0.55	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000
0.60	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.65	0.009	0.008	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
0.70	0.011	0.010	0.010	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
0.75	0.014	0.013	0.012	0.010	0.008	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0.80	0.019	0.018	0.017	0.014	0.011	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002
0.85	0.026	0.025	0.023	0.019	0.015	0.012	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.003
0.90	0.033	0.032	0.030	0.024	0.019	0.016	0.013	0.011	0.010	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003
0.95	0.042	0.040	0.038	0.030	0.024	0.020	0.017	0.014	0.012	0.011	0.009	0.008	0.007	0.007	0.006	0.005	0.005	0.005	0.004
1.00	0.051	0.048	0.046	0.036	0.029	0.024	0.020	0.017	0.015	0.013	0.011	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005
1.05	0.075	0.072	0.068	0.054	0.044	0.036	0.030	0.026	0.022	0.019	0.017	0.015	0.013	0.012	0.011	0.010	0.009	0.008	0.008
1.10	0.103	0.097	0.093	0.073	0.059	0.049	0.041	0.035	0.030	0.026	0.023	0.021	0.018	0.016	0.013	0.013	0.012	0.011	0.010
1.15	0.131	0.125	0.118	0.094	0.076	0.063	0.053	0.045	0.039	0.034	0.029	0.026	0.023	0.021	0.019	0.017	0.016	0.014	0.013
1.20	0.160	0.152	0.145	0.114	0.093	0.077	0.064	0.055	0.047	0.041	0.036	0.032	0.029	0.026	0.023	0.021	0.019	0.018	0.016
1.25	0.189	0.180	0.171	0.135	0.109	0.091	0.076	0.065	0.056	0.049	0.043	0.038	0.034	0.030	0.027	0.025	0.023	0.021	0.019
1.30	0.218	0.207	0.197	0.155	0.126	0.104	0.088	0.075	0.064	0.056	0.049	0.044	0.039	0.035	0.032	0.029	0.026	0.024	0.022
1.35	0.245	0.233	0.221	0.175	0.142	0.117	0.099	0.084	0.072	0.063	0.055	0.049	0.044	0.039	0.035	0.032	0.029	0.027	0.025
1.40	0.272	0.258	0.245	0.194	0.157	0.130	0.109	0.093	0.080	0.070	0.061	0.054	0.049	0.044	0.039	0.036	0.033	0.030	0.027
1.45	0.297	0.282	0.269	0.212	0.172	0.142	0.120	0.102	0.088	0.077	0.067	0.060	0.053	0.048	0.043	0.039	0.036	0.033	0.030
1.50	0.322	0.306	0.291	0.230	0.187	0.154	0.130	0.110	0.095	0.083	0.073	0.065	0.058	0.052	0.047	0.042	0.039	0.035	0.032
1.55	0.346	0.329	0.313	0.248	0.201	0.166	0.139	0.119	0.102	0.089	0.078	0.070	0.062	0.056	0.050	0.046	0.042	0.038	0.035
1.60	0.370	0.351	0.334	0.265	0.214	0.177	0.149	0.127	0.110	0.095	0.084	0.074	0.066	0.059	0.054	0.049	0.044	0.041	0.037
1.65	0.393	0.373	0.355	0.281	0.228	0.188	0.158	0.135	0.116	0.101	0.089	0.079	0.070	0.063	0.057	0.052	0.047	0.043	0.040
1.70	0.416	0.395	0.376	0.298	0.241	0.200	0.168	0.143	0.123	0.107	0.094	0.084	0.075	0.067	0.060	0.055	0.050	0.046	0.042
1.75	0.438	0.417	0.397	0.314	0.255	0.211	0.177	0.151	0.131	0.113	0.100	0.088	0.079	0.071	0.064	0.058	0.053	0.048	0.044
1.80	0.460	0.438	0.417	0.331	0.268	0.222	0.186	0.159	0.137	0.119	0.105	0.093	0.083	0.074	0.067	0.061	0.055	0.051	0.047
1.85	0.504	0.480	0.458	0.363	0.294	0.243	0.205	0.174	0.150	0.131	0.115	0.102	0.091	0.082	0.074	0.067	0.061	0.056	0.051
1.90	0.548	0.522	0.498	0.396	0.321	0.265	0.223	0.190	0.164	0.143	0.126	0.111	0.099	0.089	0.080	0.073	0.066	0.061	0.056
1.95	0.591	0.564	0.538	0.429	0.348	0.288	0.242	0.206	0.178	0.155	0.136	0.121	0.108	0.097	0.087	0.079	0.072	0.066	0.061
2.00	0.634	0.606	0.579	0.462	0.375	0.310	0.261	0.222	0.192	0.167	0.147	0.130	0.116	0.104	0.094	0.085	0.078	0.071	0.065
2.05	0.677	0.647	0.619	0.496	0.403	0.334	0.280	0.239	0.206	0.179	0.158	0.140	0.125	0.112	0.101	0.092	0.084	0.077	0.070
2.10	0.718	0.688	0.659	0.531	0.432	0.357	0.300	0.256	0.221	0.192	0.169	0.150	0.134	0.120	0.109	0.098	0.090	0.082	0.075
2.15	0.758	0.728	0.699	0.566	0.461	0.381	0.320	0.273	0.235	0.205	0.180	0.160	0.142	0.128	0.116	0.105	0.096	0.088	0.081
2.20	0.796	0.767	0.738	0.601	0.490	0.406	0.341	0.291	0.251	0.218	0.192	0.170	0.152	0.136	0.123	0.112	0.102	0.093	0.086
2.25	0.831	0.803	0.775	0.636	0.521	0.431	0.362	0.309	0.263	0.232	0.204	0.181	0.161	0.145	0.131	0.119	0.108	0.099	0.091
2.30	0.864	0.838	0.811	0.672	0.551	0.457	0.384	0.327	0.282	0.246	0.216	0.191	0.171	0.153	0.138	0.126	0.115	0.105	0.096
2.35	0.919	0.898	0.874	0.742	0.614	0.510	0.429	0.366	0.315	0.275	0.241	0.214	0.191	0.171	0.155	0.140	0.128	0.117	0.108
2.40	0.958	0.943	0.925	0.808	0.678	0.566	0.476	0.406	0.350	0.305	0.268	0.237	0.212	0.190	0.172	0.156	0.142	0.130	0.119
2.45	0.982	0.973	0.962	0.868	0.742	0.623	0.525	0.448	0.386	0.336	0.296	0.262	0.234	0.210	0.189	0.172	0.156	0.143	0.131
2.50	0.994	0.989	0.983	0.918	0.803	0.681	0.576	0.491	0.424	0.369	0.324	0.287	0.256	0.230	0.208	0.188	0.172	0.157	0.144
2.55	0.998	0.997	0.994	0.955	0.860	0.740	0.629	0.537	0.463	0.403	0.355	0.314	0.280	0.251	0.227	0.206	0.188	0.172	0.158
2.60	1.000	0.999	0.998	0.979	0.909	0.797	0.682	0.584	0.504	0.439	0.386	0.342	0.305	0.274	0.247	0.224	0.204	0.187	0.172
2.65	1.000	1.000	1.000	0.992	0.947	0.851	0.737	0.633	0.546	0.476	0.418	0.371	0.331	0.297	0.268	0.243	0.221	0.202	0.186
2.70	1.000	1.000	1.000	0.996	0.973	0.899	0.790	0.682	0.590	0.514	0.452	0.401	0.357	0.321	0.289	0.262	0.239	0.219	0.201
2.75	1.000	1.000	1.000	0.999	0.989	0.938	0.842	0.733	0.635	0.554	0.487	0.431	0.385	0.345	0.312	0.283	0.258	0.236	0.217
2.80	1.000	1.000	1.000	1.000	0.996	0.966	0.888	0.785	0.682	0.595	0.523	0.464	0.413	0.371	0.335	0.304	0.277	0.253	0.233
2.85	1.000	1.000	1.000	1.000	0.995	0.970	0.899	0.800	0.703	0.619	0.548	0.489	0.439	0.396	0.359	0.328	0.300	0.275	0.255
2.90	1.000	1.000	1.000	1.000	1.000	0.996	0.973	0.907	0.814	0.721	0.640	0.571	0.513	0.463	0.420	0.382	0.350	0.321	0.291
2.95	1.000	1.000	1.000	1.000	1.000	1.000	0.996	0.976	0.914	0.826	0.738	0.659	0.592	0.534	0.484	0.441	0.404	0.371	0.341
3.00	1																		



## **APPENDIX B**



INVERSE TABLE

See a general description of the inverse table in Section 4. The following example illustrates its use. Given  $\bar{R} = 130$  yards,  $\bar{a} = 30$  yards,  $\sigma = 100$  yards, what number of bombs is required to give an expected coverage of 80%? Here  $a = 30/100 = 0.3$ ,  $R = 130/100 = 1.3$ ,  $E = 0.80$ . The result is found on page 136 of the tables, and is  $n = 56$ .



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.05

A/R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.01C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.01S	461	462	466	472	480	491	504	520	539	561	586	615	647	684	725	770	820	875	936
0.02C	260	260	262	265	270	276	284	293	303	316	330	346	364	385	408	433	461	493	527
0.02S	166	167	168	170	173	177	182	187	194	202	211	222	233	246	261	277	296	319	337
0.03C	116	116	117	118	120	123	126	130	135	141	147	154	162	171	182	193	205	219	234
0.03S	85	85	86	87	89	91	93	96	99	103	108	113	119	126	133	142	151	161	172
0.04C	65	65	66	67	68	69	71	74	76	79	83	87	91	97	102	109	116	123	132
0.04S	52	52	52	53	54	55	56	58	60	63	66	69	72	76	81	86	92	98	104
0.05C	42	42	42	43	44	45	46	47	49	51	53	56	59	62	66	70	74	79	85
0.06C	29	29	30	30	30	31	32	33	34	36	37	39	41	43	46	49	52	55	59
0.07C	22	22	22	22	23	23	24	24	25	26	27	29	30	32	34	36	38	41	43
0.08C	17	17	17	17	17	18	18	19	19	20	21	22	23	25	26	28	29	31	33
0.09C	13	13	13	14	14	14	14	15	15	16	17	18	19	19	21	22	23	25	26
0.10C	11	11	11	11	11	12	12	12	13	13	14	14	15	16	17	18	19	20	22
0.12C	8	8	8	8	8	8	8	9	9	9	10	10	11	11	12	13	13	14	15
0.14C	6	6	6	6	6	6	6	6	7	7	7	8	8	8	9	9	10	11	11
0.16C	5	5	5	5	5	5	5	5	5	5	6	6	6	7	7	7	8	8	9
0.18C	4	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7
0.20C	3	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	6
0.25C	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4
0.30C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3
0.35C	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
0.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
0.45C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
0.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.55C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.65C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.70C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.75C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.85C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.90C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.95C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.10C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.30C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.70C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.90C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.05

A\R	1.00	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.01C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.015	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.02C	564	605	649	697	748	804	863	927	994	***	***	***	***	***	***	***	***	***	***
0.025	361	387	415	446	479	515	553	593	636	682	730	781	835	892	951	***	***	***	***
0.03C	251	269	289	310	333	358	384	412	442	474	507	543	580	619	660	703	748	794	843
0.035	184	198	212	228	245	263	282	303	325	348	373	399	426	455	485	517	550	584	619
0.04C	141	152	163	175	187	201	216	232	249	267	286	306	327	349	372	396	421	447	474
0.045	112	120	129	138	148	159	171	183	197	211	226	242	258	275	294	313	333	353	375
0.05C	91	97	104	112	120	129	138	149	159	171	183	196	209	223	238	253	269	284	304
0.06C	63	68	73	78	84	90	96	103	111	119	127	136	145	155	165	176	187	199	211
0.07C	46	50	53	57	62	66	71	76	82	87	94	100	107	114	122	129	138	146	155
0.08C	36	38	41	44	47	51	54	58	63	67	72	77	82	87	93	99	106	112	119
0.09C	28	30	33	35	37	40	43	46	50	53	57	61	65	69	74	78	83	89	94
0.10C	23	25	26	28	30	33	35	38	40	43	46	49	51	54	60	64	68	72	76
0.12C	16	17	18	20	21	23	24	26	28	30	32	34	37	39	42	44	47	50	53
0.14C	12	13	14	15	16	17	18	19	21	22	24	25	27	29	31	33	35	37	39
0.16C	9	10	11	11	12	13	14	15	16	17	18	20	21	22	24	25	27	28	30
0.18C	7	8	8	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	24
0.20C	6	7	7	7	8	9	9	10	11	11	12	13	13	14	15	16	17	18	19
0.25C	4	4	5	5	5	6	6	6	7	7	8	8	9	9	10	11	12	13	13
0.30C	3	3	3	4	4	4	4	5	5	5	6	6	6	7	7	8	8	9	9
0.35C	2	2	3	3	3	3	3	3	4	4	4	4	5	5	5	6	6	7	7
0.40C	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	5	5	5
0.45C	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4
0.50C	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
0.55C	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3
0.60C	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3
0.65C	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
0.70C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
0.75C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
0.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
0.85C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.90C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.95C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.10C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.30C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.70C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.90C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMA UNITS \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=0.5

A \ R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.01C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.015	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.02C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.03C	894	946	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	657	695	735	759	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04C	503	532	563	735	940	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	397	421	445	581	743	937	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	322	341	360	470	602	759	948	***	***	***	***	***	***	***	***	***	***	***	***
0.06C	224	237	250	317	418	527	658	816	***	***	***	***	***	***	***	***	***	***	***
0.07C	164	174	184	240	307	387	484	600	741	915	***	***	***	***	***	***	***	***	***
0.08C	124	133	141	184	235	297	370	459	567	701	867	***	***	***	***	***	***	***	***
0.09C	100	105	112	145	186	234	293	363	448	553	685	852	***	***	***	***	***	***	***
0.10C	81	85	90	118	151	190	237	294	363	448	555	689	864	***	***	***	***	***	***
0.12C	56	59	63	82	105	132	165	204	252	311	385	478	599	757	969	***	***	***	***
0.14C	41	44	46	60	77	97	121	150	185	228	282	351	440	556	710	919	***	***	***
0.16C	32	34	36	46	59	74	93	115	142	175	216	268	336	425	543	702	919	***	***
0.18C	25	27	28	37	47	59	73	91	112	138	171	212	265	335	428	553	724	959	***
0.20C	20	22	23	30	38	48	59	73	91	112	138	171	214	271	345	446	584	774	***
0.25C	13	14	15	19	24	31	38	47	58	71	88	109	136	172	219	283	370	489	655
0.30C	9	10	10	13	17	21	26	33	40	49	61	75	94	118	151	194	253	334	447
0.35C	7	7	8	10	13	16	19	24	29	36	44	55	68	86	109	141	183	241	322
0.40C	5	6	6	8	10	12	15	18	22	28	34	42	52	65	83	106	138	181	241
0.45C	4	5	5	6	8	10	12	14	18	22	27	33	41	51	64	82	107	140	186
0.50C	4	4	4	5	6	8	10	12	14	17	21	26	33	41	51	66	85	111	146
0.55C	3	3	3	4	5	6	8	10	12	14	18	22	27	33	42	53	68	89	118
0.60C	3	3	3	4	4	5	7	8	10	12	15	18	22	27	34	44	56	73	96
0.65C	2	2	3	3	4	5	6	7	8	10	12	15	19	23	29	36	47	60	79
0.70C	2	2	2	3	3	4	5	6	7	9	11	13	16	20	24	31	39	50	66
0.75C	2	2	2	2	3	4	4	5	6	8	9	11	14	17	21	25	33	43	55
0.80C	2	2	2	2	3	3	4	5	6	7	8	10	12	14	18	22	28	36	47
0.85C	2	2	2	2	2	3	3	4	5	6	7	8	10	13	16	19	24	31	40
0.90C	1	1	1	2	2	3	3	4	4	5	6	7	9	11	14	17	21	27	34
0.95C	1	1	1	2	2	2	3	3	4	5	6	7	8	10	12	15	18	23	30
1.00C	1	1	1	2	2	2	3	3	4	4	5	6	7	9	11	13	16	20	26
1.10C	1	1	1	1	2	2	2	2	3	3	4	5	6	7	8	10	13	16	20
1.20C	1	1	1	1	1	2	2	2	2	3	3	4	5	6	7	8	10	12	15
1.30C	1	1	1	1	1	1	2	2	2	2	3	3	4	5	6	7	8	10	12
1.40C	1	1	1	1	1	1	1	2	2	2	2	3	3	4	5	5	7	8	10
1.50C	1	1	1	1	1	1	1	1	2	2	2	2	3	3	4	5	5	7	8
1.60C	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	4	5	5	7
1.70C	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	4	5	5
1.80C	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	4	5
1.90C	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	4
2.00C	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3
2.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3
2.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
2.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.10

A\R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.01C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.015	943	944	951	963	980	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.02C	530	531	535	542	552	564	579	598	620	645	674	707	745	787	835	888	944	***	***
0.025	340	340	343	347	353	361	371	383	397	413	432	453	477	504	534	568	606	647	693
0.03C	236	236	238	241	245	251	258	266	276	287	300	315	331	350	371	395	421	450	481
0.035	174	174	175	177	180	184	189	196	203	211	220	231	244	257	273	290	309	330	354
0.04C	133	133	134	136	138	141	145	150	155	162	169	177	187	197	209	222	237	253	271
0.045	105	105	106	107	109	112	115	118	123	128	134	140	148	156	165	176	187	200	214
0.05C	85	85	86	87	89	91	93	96	100	104	108	114	120	126	134	142	152	162	174
0.06C	59	59	60	61	62	63	65	67	69	72	75	79	83	88	93	99	106	113	121
0.07C	44	44	44	45	45	46	48	49	51	53	55	58	61	65	69	73	78	83	89
0.08C	34	34	34	34	35	36	37	38	39	41	43	45	47	50	53	56	60	64	68
0.09C	27	27	27	27	28	28	29	30	31	32	34	35	37	39	42	44	47	50	54
0.10C	22	22	22	22	23	23	24	24	25	26	27	29	30	32	34	36	38	41	44
0.12C	15	15	15	15	16	16	17	17	18	18	19	20	21	22	24	25	27	29	31
0.14C	11	11	11	12	12	12	12	13	13	14	14	15	16	17	18	19	20	21	23
0.16C	9	9	9	9	9	9	9	10	10	11	11	12	12	13	14	14	15	16	17
0.18C	7	7	7	7	7	7	8	8	8	8	9	9	10	10	11	11	12	13	14
0.20C	6	6	6	6	6	6	6	6	7	7	7	8	8	8	9	9	10	11	11
0.25C	4	4	4	4	4	4	4	4	4	5	5	5	5	5	6	6	7	7	7
0.30C	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5
0.35C	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4
0.40C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
0.45C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
0.50C	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
0.55C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
0.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
0.65C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
0.70C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.75C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.85C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.90C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.95C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.10C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.30C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.70C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.90C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
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E=10

A \ R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.010	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.015	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.020	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.025	743	798	858	923	993	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.030	516	554	596	641	690	743	800	861	927	997	***	***	***	***	***	***	***	***	***
0.035	379	407	438	471	507	546	588	633	681	733	788	846	908	974	***	***	***	***	***
0.040	290	312	335	361	388	418	450	485	522	561	603	648	696	746	799	856	915	978	***
0.045	230	247	265	285	307	330	356	383	412	443	477	512	550	589	632	676	723	773	825
0.050	186	200	215	231	249	268	288	310	334	359	386	415	445	478	512	548	586	626	669
0.060	129	139	149	161	173	186	200	216	232	250	268	288	309	332	355	380	407	435	464
0.070	95	102	110	118	127	137	147	159	171	183	197	212	227	244	261	280	299	320	341
0.080	73	78	84	91	97	105	113	121	131	141	151	162	174	187	200	214	229	245	261
0.090	58	62	67	72	77	83	89	96	103	111	119	128	138	148	158	169	181	193	206
0.100	47	50	54	58	62	67	72	78	84	90	97	104	112	120	128	137	147	157	167
0.120	33	35	38	40	44	47	50	54	58	63	67	72	78	83	89	95	102	109	116
0.140	24	26	28	30	32	35	37	40	43	46	50	53	57	61	66	70	75	80	85
0.160	19	20	21	23	25	27	29	31	33	35	38	41	44	47	50	54	57	61	65
0.180	15	16	17	18	20	21	23	24	26	28	30	32	35	37	40	43	45	49	52
0.200	12	13	14	15	16	17	18	20	21	23	24	26	28	30	32	35	37	39	42
0.250	8	8	9	10	10	11	12	13	14	15	16	17	18	19	21	22	24	25	27
0.300	6	6	6	7	7	8	8	9	10	10	11	12	13	14	15	16	17	18	19
0.350	4	5	5	5	6	6	6	7	7	8	8	9	9	10	11	11	12	13	14
0.400	3	4	4	4	4	5	5	5	6	6	6	7	7	8	8	9	9	10	11
0.450	3	3	3	3	4	4	4	4	5	5	5	5	6	6	7	7	8	8	8
0.500	2	2	3	3	3	3	3	4	4	4	4	5	5	5	5	6	6	7	7
0.550	2	2	2	2	2	3	3	3	3	3	4	4	4	4	5	5	5	5	6
0.600	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4	5
0.650	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4
0.700	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4
0.750	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
0.800	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
0.850	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3
0.900	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
0.950	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
1.000	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
1.100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
1.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.300	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=10

A\R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.01C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.01S	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.02C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.02S	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.03C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.03S	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04S	880	939	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	715	760	810	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05S	495	528	563	765	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.07C	364	388	413	562	758	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.08C	279	297	316	430	580	782	***	***	***	***	***	***	***	***	***	***	***	***	***
0.09C	220	235	250	340	458	618	838	***	***	***	***	***	***	***	***	***	***	***	***
0.10C	178	190	203	275	371	500	679	934	***	***	***	***	***	***	***	***	***	***	***
0.12C	124	132	141	191	258	347	471	648	910	***	***	***	***	***	***	***	***	***	***
0.14C	91	97	103	141	189	255	346	475	667	959	***	***	***	***	***	***	***	***	***
0.16C	70	74	79	108	145	195	264	363	510	732	***	***	***	***	***	***	***	***	***
0.18C	55	59	63	85	114	154	209	287	402	577	849	***	***	***	***	***	***	***	***
0.20C	45	48	51	69	93	125	169	232	325	466	685	***	***	***	***	***	***	***	***
0.25C	29	31	33	44	59	79	107	147	206	295	433	651	***	***	***	***	***	***	***
0.30C	20	21	23	31	41	55	74	102	142	202	296	445	683	***	***	***	***	***	***
0.35C	15	16	17	22	30	40	54	74	103	147	214	320	491	771	***	***	***	***	***
0.40C	11	12	13	17	23	31	41	56	78	111	161	240	366	572	917	***	***	***	***
0.45C	9	10	10	14	18	24	32	44	61	86	124	185	281	438	698	***	***	***	***
0.50C	7	8	8	11	15	19	26	35	48	68	99	146	220	342	543	883	***	***	***
0.55C	6	6	7	9	12	16	21	29	39	55	79	117	176	272	429	695	***	***	***
0.60C	5	5	6	8	10	13	18	24	33	45	65	95	143	219	344	554	913	***	***
0.65C	4	5	5	7	9	11	15	20	27	38	54	79	117	179	279	447	737	***	***
0.70C	4	4	4	6	7	10	13	17	23	32	45	65	97	147	229	364	593	987	***
0.75C	3	4	4	5	6	8	11	15	20	27	38	55	81	123	189	299	484	801	***
0.80C	3	3	3	4	6	7	10	13	17	23	33	47	68	103	158	247	398	654	***
0.85C	3	3	3	4	5	6	8	11	15	20	28	40	58	87	132	206	329	537	898
0.90C	2	3	3	3	4	6	7	10	13	17	24	34	50	74	111	173	274	444	737
0.95C	2	2	2	3	4	5	7	9	11	15	21	30	43	63	94	145	229	369	608
1.00C	2	2	2	3	4	5	6	8	10	13	18	26	37	54	80	123	193	308	504
1.10C	2	2	2	2	3	4	5	6	8	11	14	20	28	40	59	89	138	217	351
1.20C	2	2	2	2	3	3	4	5	6	8	11	15	21	30	44	66	100	156	248
1.30C	1	1	1	2	2	3	3	4	5	7	9	12	17	23	34	49	74	114	178
1.40C	1	1	1	2	2	2	3	3	4	6	7	10	13	18	26	37	55	84	130
1.50C	1	1	1	1	2	2	2	3	4	5	6	8	11	14	20	29	42	63	96
1.60C	1	1	1	1	1	2	2	3	3	4	5	7	9	12	16	22	32	47	71
1.70C	1	1	1	1	1	2	2	2	3	3	4	5	7	9	13	18	25	36	54
1.80C	1	1	1	1	1	1	2	2	2	3	4	5	6	8	10	14	20	28	41
1.90C	1	1	1	1	1	1	2	2	2	3	3	4	5	6	8	11	16	22	32
2.00C	1	1	1	1	1	1	1	2	2	2	3	3	4	5	7	9	13	17	25
2.20C	1	1	1	1	1	1	1	1	2	2	2	3	3	4	5	6	8	11	16
2.40C	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	5	6	8	10
2.60C	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	4	5	7
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	4	5
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	5
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E-15

A \ R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.015	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.020	817	818	824	835	849	868	892	920	954	993	***	***	***	***	***	***	***	***	***
0.025	523	524	528	534	544	556	571	589	611	636	665	698	735	777	825	877	936	***	***
0.030	363	364	367	371	377	386	397	409	424	442	462	485	511	540	573	609	650	695	745
0.035	267	267	269	273	278	284	292	301	312	325	339	356	375	397	421	448	478	511	548
0.040	205	205	206	209	213	217	223	230	239	249	260	273	288	304	322	343	366	391	419
0.045	162	162	163	165	168	172	177	182	189	197	206	216	227	240	255	271	289	309	332
0.050	131	131	132	134	136	139	143	148	153	159	167	175	184	195	207	220	234	251	269
0.060	91	91	92	93	95	97	100	103	106	111	116	122	128	135	144	153	163	174	187
0.070	67	67	68	69	70	71	73	76	78	82	85	89	94	100	106	112	120	128	137
0.080	52	52	52	53	54	55	56	58	60	63	65	69	72	76	81	86	92	98	105
0.090	41	41	41	42	42	43	45	46	48	50	52	54	57	60	64	68	73	78	83
0.100	33	33	33	34	34	35	36	37	39	40	42	44	46	49	52	55	59	63	67
0.120	23	23	23	24	24	25	25	26	27	28	29	31	32	34	36	39	41	44	47
0.140	17	17	17	18	18	18	19	19	20	21	22	23	24	25	27	28	30	32	35
0.160	13	13	13	14	14	14	15	15	16	17	18	18	19	21	22	23	25	27	29
0.180	11	11	11	11	11	11	12	12	12	13	13	14	15	15	16	17	19	20	21
0.200	9	9	9	9	9	9	9	10	10	10	11	11	12	13	13	14	15	16	17
0.250	6	6	6	6	6	6	6	6	7	7	7	7	8	8	9	9	10	10	11
0.300	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	7	7	7	8
0.350	3	3	3	3	3	3	3	4	4	4	4	4	4	4	5	5	6	6	6
0.400	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5
0.450	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4
0.500	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
0.550	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
0.600	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
0.650	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
0.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
0.750	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
0.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
0.850	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.950	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.300	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E-15

A\R	1.00	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.015	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.020	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.030	800	861	927	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	588	633	681	735	793	856	925	999	***	***	***	***	***	***	***	***	***	***	***
0.040	450	484	522	563	607	655	708	765	825	892	964	***	***	***	***	***	***	***	***
0.045	356	383	412	445	480	518	559	604	653	705	761	822	887	956	***	***	***	***	***
0.050	288	310	334	360	389	420	453	490	529	571	617	666	718	775	835	900	969	***	***
0.060	200	216	232	250	270	292	315	340	367	397	428	462	499	538	580	625	673	724	780
0.070	147	158	171	184	198	214	231	250	270	292	315	340	367	395	426	459	494	532	573
0.080	113	121	131	141	152	164	177	191	207	223	241	260	281	303	326	352	379	408	439
0.090	85	94	103	111	120	130	140	151	163	177	191	206	222	239	258	278	299	322	344
0.100	72	78	84	90	97	105	114	123	132	143	154	167	180	194	209	225	242	261	281
0.120	50	54	58	63	68	73	79	85	92	99	107	116	125	135	145	156	168	181	195
0.140	37	40	43	46	50	54	58	63	68	73	79	85	92	99	107	115	124	133	143
0.160	29	31	33	36	38	41	45	48	52	56	60	65	70	76	82	88	95	102	110
0.180	23	24	26	28	30	33	35	38	41	44	48	52	56	60	65	70	75	81	87
0.200	18	20	21	23	25	27	29	31	33	36	39	42	45	49	52	56	61	65	70
0.250	12	13	14	15	16	17	18	20	21	23	25	27	29	31	34	36	39	42	45
0.300	8	9	10	10	11	12	13	14	15	16	17	19	20	22	23	25	27	29	31
0.350	6	7	7	8	8	9	10	10	11	12	13	14	15	16	17	18	20	21	23
0.400	5	5	6	6	6	7	7	8	9	9	10	11	11	12	13	14	15	16	18
0.450	4	4	5	5	5	6	6	6	7	7	8	8	9	9	10	10	11	12	14
0.500	3	4	4	4	4	5	5	5	6	6	6	7	7	8	9	9	10	10	11
0.550	3	3	3	3	4	4	4	4	5	5	5	6	6	7	7	8	8	9	9
0.600	2	3	3	3	3	3	4	4	4	4	5	5	5	6	6	6	7	7	8
0.650	2	2	2	3	3	3	3	3	3	4	4	4	4	5	5	5	6	6	7
0.700	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	5	5	5	6
0.750	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	5	5
0.800	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4
0.850	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4
0.900	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4
0.950	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3
1.000	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3
1.100	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
1.200	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
1.300	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
1.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
1.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(A AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E-19

ANR	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.015	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.020	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.025	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.030	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.035	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.040	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.045	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.050	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.060	839	902	970	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.070	616	663	713	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.080	472	507	546	785	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.090	373	401	431	620	903	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.100	302	325	349	502	731	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.120	210	225	242	349	507	756	000	000	000	000	000	000	000	000	000	000	000	000	000
0.140	154	166	178	256	372	554	853	000	000	000	000	000	000	000	000	000	000	000	000
0.160	118	127	136	196	285	424	651	000	000	000	000	000	000	000	000	000	000	000	000
0.180	93	100	108	155	224	334	513	818	000	000	000	000	000	000	000	000	000	000	000
0.200	75	81	87	125	182	270	414	660	000	000	000	000	000	000	000	000	000	000	000
0.250	48	52	56	80	116	171	263	418	689	000	000	000	000	000	000	000	000	000	000
0.300	33	36	39	55	80	118	180	286	470	801	000	000	000	000	000	000	000	000	000
0.350	25	26	28	40	58	86	131	207	338	575	000	000	000	000	000	000	000	000	000
0.400	19	20	22	31	44	65	99	155	253	428	750	000	000	000	000	000	000	000	000
0.450	15	16	17	24	35	51	77	120	195	328	572	000	000	000	000	000	000	000	000
0.500	12	13	14	19	28	41	61	95	154	257	446	801	000	000	000	000	000	000	000
0.550	10	11	11	16	23	33	50	77	123	205	353	631	000	000	000	000	000	000	000
0.600	8	9	10	13	19	27	41	63	100	166	284	504	925	000	000	000	000	000	000
0.650	7	8	8	11	16	23	34	52	83	136	231	407	742	000	000	000	000	000	000
0.700	6	7	7	10	14	19	29	44	69	112	190	332	601	000	000	000	000	000	000
0.750	5	6	6	8	12	17	24	37	58	94	157	273	490	912	000	000	000	000	000
0.800	5	5	5	7	10	14	21	32	49	79	131	226	403	744	000	000	000	000	000
0.850	4	4	4	5	6	9	13	18	27	42	67	110	188	333	610	000	000	000	000
0.900	4	4	4	6	8	11	16	23	36	57	93	158	277	503	946	000	000	000	000
0.950	3	4	4	5	7	10	14	20	31	49	79	133	232	417	778	000	000	000	000
1.000	3	3	3	5	6	9	12	18	27	42	68	113	195	348	642	000	000	000	000
1.100	3	3	3	4	5	7	10	14	21	32	50	82	139	245	444	834	000	000	000
1.200	2	2	2	3	4	6	8	11	16	24	38	61	101	175	312	576	000	000	000
1.300	2	2	2	3	3	5	6	9	13	19	29	46	75	127	222	403	757	000	000
1.400	2	2	2	2	3	4	5	7	10	15	22	35	56	93	161	286	528	000	000
1.500	1	2	2	2	3	3	4	6	8	12	18	27	43	70	118	206	373	698	000
1.600	1	1	1	2	2	3	4	5	7	10	14	21	33	52	87	150	266	490	934
1.700	1	1	1	2	2	2	3	4	6	8	11	17	25	40	65	110	193	348	652
1.800	1	1	1	1	2	2	3	4	5	6	9	13	20	31	50	82	141	250	460
1.900	1	1	1	1	2	2	2	3	4	5	7	11	16	24	38	62	104	182	328
2.000	1	1	1	1	1	2	2	3	3	5	6	9	13	19	29	47	78	134	237
2.200	1	1	1	1	1	1	2	2	3	3	4	6	8	12	18	28	45	75	128
2.400	1	1	1	1	1	1	1	2	2	3	3	4	6	8	12	18	27	43	72
2.600	1	1	1	1	1	1	1	1	2	2	3	3	4	6	8	12	17	26	42
2.800	1	1	1	1	1	1	1	1	1	2	2	2	3	4	6	8	11	17	26
3.000	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	6	8	11	16
3.200	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	5	7	11
3.400	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	5	7
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	5
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.20

A \ R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.020	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.025	717	718	724	733	744	762	783	809	838	873	913	938	***	***	***	***	***	***	***
0.030	498	499	503	509	518	530	544	561	582	606	634	666	701	742	788	839	895	959	***
0.035	364	367	370	374	381	389	400	413	428	445	466	489	515	545	579	616	658	705	756
0.040	280	281	283	287	292	298	306	316	328	341	357	375	395	418	443	472	504	539	579
0.045	222	222	224	227	230	236	242	250	259	270	282	296	312	330	350	373	398	426	458
0.050	180	180	181	184	187	191	196	202	210	219	229	240	253	267	284	302	323	345	371
0.060	125	125	126	128	130	133	136	141	146	152	159	167	176	186	197	210	224	240	258
0.070	92	92	93	94	96	98	100	104	107	112	117	123	129	137	145	154	165	176	189
0.080	70	71	71	72	73	75	77	79	82	86	90	94	99	105	111	118	126	135	145
0.090	56	56	56	57	58	59	61	63	65	68	71	74	78	83	88	94	100	107	115
0.100	45	45	46	46	47	48	49	51	53	55	57	60	64	67	71	76	81	87	93
0.120	32	32	32	32	33	34	34	36	37	38	40	42	44	47	50	53	56	60	65
0.140	23	23	24	24	24	25	25	26	27	28	30	31	33	35	37	39	42	44	48
0.160	18	18	18	18	19	19	20	20	21	22	23	24	25	27	28	30	32	34	37
0.180	14	14	14	15	15	15	16	16	17	17	18	19	20	21	22	24	25	27	29
0.200	12	12	12	12	12	12	13	13	14	14	15	15	16	17	18	19	21	22	24
0.250	8	8	8	8	8	8	8	9	9	9	10	10	11	11	12	13	13	14	15
0.300	5	5	6	6	6	6	6	5	6	7	7	7	7	8	8	9	9	10	11
0.350	4	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	7	8	8
0.400	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5	6	6	6
0.450	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5
0.500	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4
0.550	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4
0.600	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
0.650	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
0.700	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
0.750	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
0.800	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
0.850	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
0.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
0.950	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.300	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=20

A/R	1.00	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.020	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.030	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	813	876	946	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	623	671	724	783	847	917	994	***	***	***	***	***	***	***	***	***	***	***	***
0.045	492	530	572	619	669	725	785	852	924	***	***	***	***	***	***	***	***	***	***
0.050	399	430	464	501	542	587	636	690	748	812	881	957	***	***	***	***	***	***	***
0.060	277	298	322	348	377	408	442	479	520	564	612	664	721	783	850	923	***	***	***
0.070	204	219	237	256	277	300	323	352	382	414	450	488	530	575	625	678	736	800	869
0.080	156	168	181	196	212	230	249	270	293	317	344	374	406	440	478	519	564	612	666
0.090	123	133	143	155	168	181	197	213	231	251	272	295	321	348	378	410	445	484	526
0.100	100	108	116	126	136	147	159	173	187	203	220	239	260	282	306	332	361	392	426
0.120	70	75	81	87	94	102	111	120	130	141	153	166	180	196	212	231	250	272	296
0.140	51	55	59	64	69	75	81	88	96	104	113	122	133	144	156	169	184	200	217
0.160	39	42	46	49	53	58	62	68	73	79	86	94	101	110	119	130	141	153	166
0.180	31	34	36	39	42	46	49	53	58	63	68	74	80	87	94	102	111	121	131
0.200	25	27	29	32	34	37	40	43	47	51	55	60	65	70	76	83	90	98	106
0.250	16	18	19	20	22	24	26	28	30	33	35	38	42	45	49	53	58	62	68
0.300	12	12	13	14	15	17	18	19	21	23	25	27	29	31	34	37	40	43	47
0.350	9	9	10	11	11	12	13	14	16	17	18	20	21	23	25	27	29	32	34
0.400	7	7	8	8	9	10	10	11	12	13	14	15	16	18	19	21	22	24	26
0.450	5	6	6	7	7	8	8	9	9	10	11	12	13	14	15	16	18	19	21
0.500	4	5	5	5	6	6	7	7	8	8	9	10	10	11	12	13	14	15	17
0.550	4	4	4	5	5	5	6	6	6	7	7	8	9	9	10	11	12	13	14
0.600	3	3	4	4	4	4	5	5	5	6	6	7	7	8	8	9	10	11	11
0.650	3	3	3	3	4	4	4	4	4	5	5	6	6	6	7	7	8	9	10
0.700	2	3	3	3	3	3	3	4	4	4	5	5	5	6	6	7	7	8	8
0.750	2	2	2	3	3	3	3	3	4	4	4	4	5	5	5	6	6	7	7
0.800	2	2	2	2	2	3	3	3	3	3	4	4	4	4	5	5	6	6	6
0.850	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	5	5	5	6
0.900	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	5	5
0.950	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4
1.000	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4
1.100	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3
1.200	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
1.300	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
1.400	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
1.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
1.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.20

A\R	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.02C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.03C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.06C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.07C	945	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.08C	724	787	857	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.09C	572	622	677	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.10C	463	503	548	851	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.12C	321	349	380	590	951	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.14C	236	257	279	433	697	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.16C	180	196	214	331	533	899	***	***	***	***	***	***	***	***	***	***	***	***	***
0.18C	142	155	169	261	420	708	***	***	***	***	***	***	***	***	***	***	***	***	***
0.20C	115	125	136	211	339	571	***	***	***	***	***	***	***	***	***	***	***	***	***
0.25C	74	80	87	134	215	361	638	***	***	***	***	***	***	***	***	***	***	***	***
0.30C	51	55	60	93	148	248	435	803	***	***	***	***	***	***	***	***	***	***	***
0.35C	37	40	44	68	107	179	314	576	***	***	***	***	***	***	***	***	***	***	***
0.40C	28	31	33	51	81	135	235	429	823	***	***	***	***	***	***	***	***	***	***
0.45C	22	24	26	40	63	104	181	329	627	***	***	***	***	***	***	***	***	***	***
0.50C	18	20	21	32	50	83	143	258	488	969	***	***	***	***	***	***	***	***	***
0.55C	15	16	17	26	41	67	115	205	386	762	***	***	***	***	***	***	***	***	***
0.60C	12	13	15	22	34	55	93	166	310	607	***	***	***	***	***	***	***	***	***
0.65C	11	11	12	18	28	46	77	136	252	489	955	***	***	***	***	***	***	***	***
0.70C	9	10	11	16	24	38	64	113	207	398	802	***	***	***	***	***	***	***	***
0.75C	8	8	9	13	20	33	54	94	171	327	652	***	***	***	***	***	***	***	***
0.80C	7	7	8	12	18	28	46	79	143	270	534	***	***	***	***	***	***	***	***
0.85C	6	6	7	10	15	24	39	67	120	224	440	904	***	***	***	***	***	***	***
0.90C	5	6	6	9	13	21	34	57	101	188	365	742	***	***	***	***	***	***	***
0.95C	5	5	6	8	12	18	29	49	86	158	304	612	***	***	***	***	***	***	***
1.00C	4	5	5	7	10	16	25	42	73	134	254	507	***	***	***	***	***	***	***
1.10C	4	4	4	6	8	12	19	32	54	97	181	353	722	***	***	***	***	***	***
1.20C	3	3	3	5	7	10	15	24	41	71	130	250	500	***	***	***	***	***	***
1.30C	3	3	3	4	5	8	12	19	31	53	95	179	352	723	***	***	***	***	***
1.40C	2	2	2	3	5	6	10	15	24	40	71	130	251	505	***	***	***	***	***
1.50C	2	2	2	3	4	5	8	12	19	31	53	96	181	357	737	***	***	***	***
1.60C	2	2	2	2	3	4	6	10	15	24	41	72	132	256	517	***	***	***	***
1.70C	2	2	2	2	3	4	5	8	12	19	31	54	98	185	367	760	***	***	***
1.80C	1	1	1	2	2	3	5	8	10	15	24	41	73	136	263	534	***	***	***
1.90C	1	1	1	2	2	3	4	5	8	12	19	32	55	101	191	380	791	***	***
2.00C	1	1	1	2	2	2	3	5	7	10	15	25	42	75	140	273	557	***	***
2.20C	1	1	1	1	2	2	3	5	7	10	16	26	44	78	146	285	584	***	***
2.40C	1	1	1	1	1	2	2	3	5	7	10	16	26	45	81	152	599	614	***
2.60C	1	1	1	1	1	1	2	2	3	5	7	11	17	27	47	85	160	314	***
2.80C	1	1	1	1	1	1	1	2	2	3	4	5	7	11	17	28	49	168	***
3.00C	1	1	1	1	1	1	1	1	2	2	3	4	5	7	11	18	30	91	93
3.20C	1	1	1	1	1	1	1	1	1	2	2	3	4	5	8	12	19	31	54
3.40C	1	1	1	1	1	1	1	1	1	1	2	2	3	4	5	8	12	19	32
3.60C	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	6	13	20	***
3.80C	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	9	13	***
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	9	***
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	***
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	***
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	***
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	***
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	***
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	***
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	***



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF F FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

F=.25

A \ R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.02C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.025	924	926	932	944	961	982	***	***	***	***	***	***	***	***	***	***	***	***	***
0.03C	642	643	648	656	667	682	701	723	750	781	817	858	905	958	***	***	***	***	***
0.035	472	472	476	482	490	501	515	532	551	574	601	631	665	704	748	797	851	913	981
0.04C	361	362	365	369	376	384	395	407	422	440	460	483	509	539	572	610	652	699	751
0.045	285	286	288	292	297	304	312	322	334	348	363	382	402	426	452	482	515	552	594
0.05C	231	232	233	236	241	246	253	261	270	282	295	309	326	345	367	391	417	447	481
0.06C	161	161	162	164	167	171	176	181	188	196	205	215	227	240	255	271	290	311	334
0.07C	118	118	119	121	123	126	129	133	138	144	151	158	167	176	187	199	213	229	246
0.08C	91	91	92	93	94	96	99	102	106	110	115	121	128	135	143	153	163	175	188
0.09C	72	72	72	73	75	76	78	81	84	87	91	96	101	107	113	121	129	138	149
0.10C	58	58	59	59	61	62	64	66	68	71	74	78	82	87	92	98	105	112	121
0.12C	41	41	41	41	42	43	44	46	47	49	52	54	57	60	64	68	73	78	84
0.14C	30	30	30	31	31	32	33	34	35	36	38	40	42	44	47	50	54	57	62
0.16C	23	23	23	24	24	24	25	26	27	28	29	31	32	34	36	39	41	44	47
0.18C	18	18	18	19	19	19	20	21	21	22	23	24	26	27	29	31	33	35	38
0.20C	15	15	15	15	16	16	16	17	17	18	19	20	21	22	23	25	27	28	30
0.25C	10	10	10	10	10	10	11	11	11	12	12	13	14	14	15	16	17	18	20
0.30C	7	7	7	7	7	7	8	8	8	9	9	9	10	10	11	11	12	13	14
0.35C	5	5	5	5	5	6	6	6	6	6	6	7	7	8	8	8	9	10	10
0.40C	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7	7	8
0.45C	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	6	6	6
0.50C	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5
0.55C	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4
0.60C	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4
0.65C	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
0.70C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
0.75C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
0.80C	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
0.85C	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
0.90C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
0.95C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
1.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
1.10C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.30C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.70C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.90C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.25

A/R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.02C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.03C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04C	809	874	945	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	640	690	747	809	878	954	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	518	559	605	656	711	773	841	916	998	***	***	***	***	***	***	***	***	***	***
0.060	360	389	420	455	494	537	584	636	693	756	826	902	986	***	***	***	***	***	***
0.07C	265	286	309	335	363	395	429	467	509	556	607	663	724	793	868	951	***	***	***
0.08C	203	219	237	256	278	302	329	358	390	425	464	507	555	607	664	728	799	878	965
0.09C	160	173	187	203	220	239	260	283	308	336	367	401	438	479	525	575	631	693	763
0.10C	130	140	152	164	178	193	210	229	250	272	297	325	355	388	425	466	511	561	617
0.12C	90	97	105	114	124	134	146	159	173	189	206	225	245	270	295	322	355	390	428
0.14C	66	72	77	84	91	99	107	117	127	139	152	166	181	198	217	237	260	286	314
0.160	51	55	59	64	70	76	82	90	98	106	116	127	139	151	166	182	199	219	241
0.18C	40	44	47	51	55	60	65	71	77	84	92	100	109	120	131	143	157	173	190
0.20C	33	35	38	41	45	49	53	57	63	68	74	81	89	97	106	116	127	140	154
0.25C	21	23	25	27	29	31	34	37	40	44	48	52	57	62	68	74	81	89	98
0.30C	15	16	17	19	20	22	24	26	28	30	33	36	39	43	47	51	56	62	68
0.35C	11	12	13	14	15	16	17	19	21	22	24	26	29	31	34	38	41	45	49
0.40C	9	9	10	11	11	12	13	15	16	17	19	20	22	24	26	29	31	34	38
0.45C	7	7	8	8	9	10	11	12	12	14	15	16	17	19	21	23	25	27	30
0.50C	6	6	6	7	7	8	9	9	10	11	12	13	14	15	17	18	20	22	24
0.55C	5	5	5	6	6	7	7	8	8	9	10	11	12	13	14	15	16	18	19
0.60C	4	4	5	5	5	6	6	7	7	8	8	9	10	11	12	13	14	15	16
0.65C	3	4	4	4	5	5	5	6	6	7	7	8	8	9	10	11	12	13	14
0.70C	3	3	3	4	4	4	5	5	5	6	6	7	7	8	8	9	10	11	12
0.75C	3	3	3	3	3	4	4	4	5	5	5	6	6	7	7	8	9	9	10
0.80C	2	3	3	3	3	3	4	4	4	4	5	5	5	6	6	7	7	8	9
0.85C	2	2	2	3	3	3	3	3	4	4	4	5	5	5	6	6	7	7	8
0.90C	2	2	2	2	3	3	3	3	3	4	4	4	4	5	5	6	6	6	7
0.95C	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	5	5	6	6
1.00C	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	5	5	5	5
1.10C	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4
1.20C	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4
1.30C	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3
1.40C	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3
1.50C	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
1.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
1.70C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
1.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
1.90C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.25

A\R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.02C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.03C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.06C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.07C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.08C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.09C	840	927	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.10C	680	750	830	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.12C	472	521	575	980	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.14C	346	382	422	719	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.16C	265	292	323	549	991	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.18C	209	230	255	433	780	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.20C	169	186	206	349	630	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.25C	108	119	131	222	398	761	***	***	***	***	***	***	***	***	***	***	***	***	***
0.30C	74	82	90	152	273	519	***	***	***	***	***	***	***	***	***	***	***	***	***
0.35C	54	60	66	111	197	373	751	***	***	***	***	***	***	***	***	***	***	***	***
0.40C	41	45	50	84	148	279	558	***	***	***	***	***	***	***	***	***	***	***	***
0.45C	32	36	39	65	115	215	427	900	***	***	***	***	***	***	***	***	***	***	***
0.50C	26	29	31	52	91	169	333	698	***	***	***	***	***	***	***	***	***	***	***
0.55C	21	23	26	42	73	135	265	551	***	***	***	***	***	***	***	***	***	***	***
0.60C	18	19	21	35	60	110	214	440	962	***	***	***	***	***	***	***	***	***	***
0.65C	15	16	18	29	50	91	175	356	771	***	***	***	***	***	***	***	***	***	***
0.70C	13	14	15	25	42	75	144	291	624	***	***	***	***	***	***	***	***	***	***
0.75C	11	12	13	21	35	63	120	240	509	***	***	***	***	***	***	***	***	***	***
0.80C	10	10	11	18	30	54	100	199	418	930	***	***	***	***	***	***	***	***	***
0.85C	8	9	10	16	26	46	85	166	346	761	***	***	***	***	***	***	***	***	***
0.90C	7	8	9	14	23	39	72	140	287	626	***	***	***	***	***	***	***	***	***
0.95C	7	7	8	12	20	34	61	118	240	517	***	***	***	***	***	***	***	***	***
1.00C	6	6	7	11	17	29	53	100	202	430	970	***	***	***	***	***	***	***	***
1.10C	5	5	6	8	13	22	39	73	144	301	663	***	***	***	***	***	***	***	***
1.20C	4	4	5	7	11	17	30	54	105	214	461	***	***	***	***	***	***	***	***
1.30C	3	4	4	6	8	14	23	41	77	154	325	724	***	***	***	***	***	***	***
1.40C	3	3	3	5	7	11	18	31	58	113	232	506	***	***	***	***	***	***	***
1.50C	2	3	3	4	6	9	14	24	44	83	168	357	806	***	***	***	***	***	***
1.60C	2	2	2	3	5	7	11	19	34	62	123	256	564	***	***	***	***	***	***
1.70C	2	2	2	3	4	6	9	15	26	47	91	185	399	910	***	***	***	***	***
1.80C	2	2	2	2	3	5	8	12	20	36	68	136	286	637	***	***	***	***	***
1.90C	2	2	2	2	3	4	6	10	16	28	52	101	207	450	***	***	***	***	***
2.00C	1	1	2	2	3	4	5	8	13	22	40	75	151	322	725	***	***	***	***
2.20C	1	1	1	2	2	3	4	6	9	14	24	44	84	170	366	832	***	***	***
2.40C	1	1	1	1	2	2	3	4	6	9	15	26	48	94	192	418	961	***	***
2.60C	1	1	1	1	1	2	2	3	4	6	10	17	29	54	106	219	480	***	***
2.80C	1	1	1	1	1	1	2	2	3	5	7	11	18	32	60	119	250	554	***
3.00C	1	1	1	1	1	1	2	2	2	3	5	7	12	20	36	68	135	286	642
3.20C	1	1	1	1	1	1	1	2	2	3	4	5	8	13	22	40	76	154	330
3.40C	1	1	1	1	1	1	1	1	2	2	3	4	6	9	14	25	45	86	176
3.60C	1	1	1	1	1	1	1	1	1	2	2	3	4	6	10	16	27	50	98
3.80C	1	1	1	1	1	1	1	1	1	1	2	2	3	4	7	10	17	30	57
4.00C	1	1	1	1	1	1	1	1	1	1	2	2	2	3	5	7	11	19	34
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	5	7	11
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	5
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.30

A\R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.030	795	797	803	813	827	846	869	897	930	969	***	***	***	***	***	***	***	***	***
0.035	584	585	590	597	608	621	638	659	683	712	745	782	825	874	929	991	***	***	***
0.040	448	448	452	457	465	476	489	505	523	545	570	599	632	669	711	759	812	871	938
0.045	354	354	357	361	368	376	386	399	414	431	451	474	499	529	562	600	642	689	741
0.050	287	287	289	293	298	305	313	323	335	349	365	384	405	429	455	486	520	558	600
0.060	199	200	201	204	207	212	218	225	233	243	254	267	281	298	316	337	361	388	417
0.070	146	147	148	150	152	156	160	165	171	178	187	196	207	219	233	248	265	285	307
0.080	112	112	113	115	117	119	123	127	131	137	143	150	158	168	178	190	203	218	235
0.090	89	89	90	91	92	95	97	100	104	108	113	118	125	133	141	150	161	172	186
0.100	72	72	73	74	75	77	79	81	84	88	92	96	102	107	114	122	130	140	150
0.120	50	50	51	51	52	53	55	57	59	61	64	67	71	75	79	85	91	97	105
0.140	37	37	37	38	38	39	40	42	43	45	47	49	52	55	58	62	67	72	77
0.160	28	28	29	29	30	30	31	32	33	35	36	39	40	42	45	48	51	55	59
0.180	23	23	23	23	24	25	25	26	27	29	30	32	34	36	38	41	43	47	51
0.200	18	18	19	19	19	20	20	21	21	22	23	24	26	27	29	31	33	35	38
0.250	12	12	12	12	12	13	13	13	14	14	15	16	17	18	19	20	21	23	24
0.300	8	8	9	9	9	9	9	9	10	10	11	11	12	12	13	14	15	16	17
0.350	6	6	6	6	7	7	7	7	7	8	8	8	9	9	10	10	11	12	13
0.400	5	5	5	5	5	5	5	6	6	6	6	6	7	7	8	8	9	9	10
0.450	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7	8
0.500	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	6	6	6
0.550	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5
0.600	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5
0.650	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4
0.700	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
0.750	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3
0.800	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
0.850	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.950	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.300	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS A  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=30

A \ R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.030	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	800	866	939	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	648	701	760	826	900	981	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	450	487	528	574	625	681	744	815	893	980	***	***	***	***	***	***	***	***	***
0.070	331	358	388	422	459	501	547	598	656	720	791	871	960	***	***	***	***	***	***
0.080	253	274	297	323	352	383	419	458	502	551	606	666	735	811	898	995	***	***	***
0.090	200	217	235	255	278	303	331	362	397	435	478	527	580	641	709	786	873	972	***
0.100	162	176	190	207	225	245	268	293	321	353	387	426	470	519	574	636	707	787	878
0.120	113	122	132	144	156	171	186	204	223	245	269	296	326	360	398	442	490	546	609
0.140	83	90	97	106	115	125	137	150	164	180	198	217	240	264	292	324	360	401	447
0.160	64	69	75	81	88	96	105	115	126	138	151	166	183	202	224	248	275	306	342
0.180	50	54	59	64	70	76	83	91	99	109	119	131	145	160	177	196	217	242	269
0.200	41	44	48	52	56	62	67	73	80	88	97	106	117	129	143	158	176	195	218
0.250	26	28	31	33	36	39	43	47	51	56	62	68	75	82	91	101	112	124	139
0.300	18	20	21	23	25	27	30	33	36	39	43	47	52	57	63	70	77	86	96
0.350	14	15	16	17	19	20	22	24	26	29	31	35	38	42	46	51	56	63	70
0.400	11	11	12	13	14	16	17	18	20	22	24	26	29	32	35	39	43	48	53
0.450	8	9	10	10	11	12	13	15	16	17	19	21	23	25	28	30	34	37	41
0.500	7	7	8	9	9	10	11	12	13	14	15	17	18	20	22	24	27	30	33
0.550	6	6	7	7	8	8	9	10	11	12	13	14	15	17	18	20	22	24	27
0.600	5	5	6	6	7	7	8	8	9	10	11	12	13	14	15	17	18	20	22
0.650	4	5	5	5	6	6	7	7	8	8	9	10	11	12	13	14	16	17	19
0.700	4	4	4	5	5	5	6	6	7	7	8	8	9	10	11	12	13	15	16
0.750	3	3	4	4	4	5	5	5	6	6	7	7	8	9	10	10	11	13	14
0.800	3	3	3	4	4	4	4	5	5	5	6	6	7	8	8	9	10	11	12
0.850	3	3	3	3	3	4	4	4	4	5	5	6	6	7	7	8	9	10	10
0.900	2	3	3	3	3	3	4	4	4	4	5	5	5	6	6	7	8	8	9
0.950	2	2	2	3	3	3	3	3	4	4	4	5	5	5	6	6	7	7	8
1.000	2	2	2	2	3	3	3	3	3	4	4	4	4	5	5	6	6	7	7
1.100	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	5	5	5	6
1.200	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	5
1.300	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4
1.400	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3
1.500	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3
1.600	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
1.700	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

$\sigma = .30$

A \ R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.030	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	983	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	681	765	860	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	500	561	631	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	382	429	482	908	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	301	338	380	715	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	244	273	307	577	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	155	174	195	365	737	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.300	107	120	134	250	503	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.350	78	87	98	181	362	778	***	***	***	***	***	***	***	***	***	***	***	***	***
0.400	59	66	74	136	270	578	***	***	***	***	***	***	***	***	***	***	***	***	***
0.450	46	51	58	106	208	442	***	***	***	***	***	***	***	***	***	***	***	***	***
0.500	37	41	46	84	164	345	780	***	***	***	***	***	***	***	***	***	***	***	***
0.550	30	34	37	68	131	274	614	***	***	***	***	***	***	***	***	***	***	***	***
0.600	25	28	31	55	107	221	491	***	***	***	***	***	***	***	***	***	***	***	***
0.650	21	23	26	46	88	180	397	935	***	***	***	***	***	***	***	***	***	***	***
0.700	18	20	22	39	73	149	323	755	***	***	***	***	***	***	***	***	***	***	***
0.750	15	17	19	33	62	124	266	614	***	***	***	***	***	***	***	***	***	***	***
0.800	13	15	16	28	52	104	221	503	***	***	***	***	***	***	***	***	***	***	***
0.850	12	13	14	24	44	87	184	415	***	***	***	***	***	***	***	***	***	***	***
0.900	10	11	12	21	38	74	154	344	822	***	***	***	***	***	***	***	***	***	***
0.950	9	10	11	18	31	63	130	287	677	***	***	***	***	***	***	***	***	***	***
1.000	8	9	10	16	29	54	110	240	560	***	***	***	***	***	***	***	***	***	***
1.100	6	7	8	12	22	40	80	171	389	948	***	***	***	***	***	***	***	***	***
1.200	5	6	6	10	17	31	60	124	274	652	***	***	***	***	***	***	***	***	***
1.300	4	5	5	8	13	24	45	91	196	455	***	***	***	***	***	***	***	***	***
1.400	4	4	4	7	11	18	34	67	142	322	718	***	***	***	***	***	***	***	***
1.500	3	3	4	5	9	15	26	51	105	230	544	***	***	***	***	***	***	***	***
1.600	3	3	3	5	7	12	21	39	78	167	384	947	***	***	***	***	***	***	***
1.700	2	3	3	4	6	9	16	30	59	123	275	661	***	***	***	***	***	***	***
1.800	2	2	2	3	5	8	13	23	45	91	199	466	***	***	***	***	***	***	***
1.900	2	2	2	3	4	6	11	18	34	68	146	333	813	***	***	***	***	***	***
2.000	2	2	2	3	4	5	9	15	27	52	109	240	572	***	***	***	***	***	***
2.200	1	1	2	2	3	4	6	10	17	31	61	129	292	709	***	***	***	***	***
2.400	1	1	1	2	2	3	4	7	11	19	36	72	156	359	886	***	***	***	***
2.600	1	1	1	1	2	2	3	5	7	12	22	42	87	189	444	***	***	***	***
2.800	1	1	1	1	1	2	2	3	5	8	14	26	50	104	232	554	***	***	***
3.000	1	1	1	1	1	2	2	3	4	6	9	16	30	60	126	286	696	***	***
3.200	1	1	1	1	1	1	2	2	3	4	7	11	19	36	72	154	356	880	***
3.400	1	1	1	1	1	1	1	2	2	3	5	7	12	22	42	84	189	444	***
3.600	1	1	1	1	1	1	1	1	2	2	4	5	8	14	26	50	109	233	559
3.800	1	1	1	1	1	1	1	1	2	2	3	4	6	10	16	30	60	128	290
4.000	1	1	1	1	1	1	1	1	1	2	2	3	4	7	11	19	36	72	156
4.500	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5	7	12	21	40
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5	8	13
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF R FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

**E=.39**

[illegible]



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.35

A\R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.030	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	976	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	790	557	932	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	549	595	647	706	771	844	927	***	***	***	***	***	***	***	***	***	***	***	***
0.070	403	437	476	519	567	620	681	749	826	913	***	***	***	***	***	***	***	***	***
0.080	309	335	364	397	434	475	521	574	632	699	774	859	957	***	***	***	***	***	***
0.090	244	265	288	314	343	375	412	453	500	552	611	679	756	843	944	***	***	***	***
0.100	198	215	233	254	278	304	334	367	405	447	495	550	612	683	765	858	967	***	***
0.120	138	149	162	177	193	211	232	255	281	310	344	382	425	474	530	596	671	758	860
0.140	101	110	119	130	142	155	170	187	206	228	252	280	312	348	389	437	492	556	631
0.160	78	84	91	99	109	119	130	143	158	174	193	214	238	266	298	334	376	425	482
0.180	61	66	72	79	86	94	103	113	125	138	152	169	188	210	235	264	297	335	380
0.200	50	54	59	64	70	76	83	92	101	112	123	137	152	170	190	213	240	271	307
0.250	32	35	38	41	45	49	53	59	65	71	79	87	97	108	121	136	153	172	195
0.300	22	24	26	28	31	34	37	41	45	49	55	60	67	75	84	94	105	119	134
0.350	16	18	19	21	23	25	27	30	33	36	40	44	49	55	61	68	77	86	98
0.400	13	14	15	16	18	19	21	23	25	28	31	34	37	42	46	52	58	65	74
0.450	10	11	12	13	14	15	17	18	20	22	24	27	29	33	36	41	45	51	58
0.500	8	9	10	10	11	12	13	15	16	18	19	21	24	26	29	33	36	41	46
0.550	7	7	8	9	9	10	11	12	13	15	16	18	19	21	24	27	30	33	37
0.600	6	6	7	7	8	9	9	10	11	12	13	15	16	18	20	22	25	28	31
0.650	5	5	6	6	7	7	8	9	10	11	12	14	15	17	19	21	23	26	29
0.700	4	5	5	5	6	6	7	7	8	9	10	11	12	14	16	18	20	22	25
0.750	4	4	4	5	5	6	6	7	7	8	9	10	11	12	14	16	18	20	22
0.800	3	4	4	4	5	5	6	6	7	7	8	9	10	11	12	14	16	18	20
0.850	3	3	4	4	4	5	5	6	6	7	7	8	9	10	11	12	14	16	18
0.900	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10	11	12	14	16
0.950	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10	11	12	14
1.000	2	2	3	3	3	3	3	4	4	4	5	5	6	7	7	8	9	10	11
1.100	2	2	2	2	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10
1.200	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6	7	8
1.300	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4	5	5	6
1.400	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	5
1.500	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4
1.600	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	4
1.700	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	4
1.800	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	4
1.900	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	4
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=35

A\R	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.025	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.030	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	979	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	718	820	941	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	549	627	718	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	432	494	566	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	349	399	457	953	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	222	253	290	601	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.300	152	174	199	411	927	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.350	111	126	144	296	664	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.400	84	95	109	222	494	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.450	65	74	84	171	378	908	***	***	***	***	***	***	***	***	***	***	***	***	***
0.500	52	59	67	135	296	704	***	***	***	***	***	***	***	***	***	***	***	***	***
0.550	42	48	54	108	235	556	***	***	***	***	***	***	***	***	***	***	***	***	***
0.600	35	39	45	88	190	444	***	***	***	***	***	***	***	***	***	***	***	***	***
0.650	29	33	37	73	155	359	902	***	***	***	***	***	***	***	***	***	***	***	***
0.700	25	28	31	61	128	294	728	***	***	***	***	***	***	***	***	***	***	***	***
0.750	21	24	27	51	107	242	593	***	***	***	***	***	***	***	***	***	***	***	***
0.800	18	20	23	44	90	201	486	***	***	***	***	***	***	***	***	***	***	***	***
0.850	16	18	20	37	75	168	401	***	***	***	***	***	***	***	***	***	***	***	***
0.900	14	15	17	32	65	141	333	852	***	***	***	***	***	***	***	***	***	***	***
0.950	12	14	15	28	55	119	278	702	***	***	***	***	***	***	***	***	***	***	***
1.000	11	12	13	24	47	101	233	581	***	***	***	***	***	***	***	***	***	***	***
1.100	8	9	10	19	36	74	166	403	***	***	***	***	***	***	***	***	***	***	***
1.200	7	8	8	14	27	55	120	284	726	***	***	***	***	***	***	***	***	***	***
1.300	6	6	7	11	21	41	88	203	505	***	***	***	***	***	***	***	***	***	***
1.400	5	5	6	9	16	32	66	147	356	937	***	***	***	***	***	***	***	***	***
1.500	4	4	5	8	13	24	49	108	255	651	***	***	***	***	***	***	***	***	***
1.600	3	4	4	6	11	19	38	80	184	458	***	***	***	***	***	***	***	***	***
1.700	3	3	3	5	9	15	29	60	135	326	855	***	***	***	***	***	***	***	***
1.800	3	3	3	4	7	12	23	46	100	235	599	***	***	***	***	***	***	***	***
1.900	2	2	3	4	6	10	18	35	75	171	424	***	***	***	***	***	***	***	***
2.000	2	2	2	3	5	8	14	27	57	126	304	795	***	***	***	***	***	***	***
2.200	2	2	2	2	4	6	9	17	33	71	161	399	***	***	***	***	***	***	***
2.400	1	1	1	2	3	4	7	11	21	41	89	209	529	***	***	***	***	***	***
2.600	1	1	1	2	2	3	5	8	13	25	51	114	273	711	***	***	***	***	***
2.800	1	1	1	1	2	3	5	9	16	31	65	147	362	966	***	***	***	***	***
3.000	1	1	1	1	1	2	3	4	6	11	19	38	82	192	484	***	***	***	***
3.200	1	1	1	1	1	2	2	3	4	7	13	24	48	106	252	653	***	***	***
3.400	1	1	1	1	1	1	2	2	3	5	8	15	29	61	137	335	897	***	***
3.600	1	1	1	1	1	1	1	2	3	4	6	10	18	36	77	179	450	***	***
3.800	1	1	1	1	1	1	1	2	2	3	4	7	12	22	45	100	236	610	***
4.000	1	1	1	1	1	1	1	1	2	2	3	5	8	14	28	58	129	315	834
4.500	1	1	1	1	1	1	1	1	1	1	2	3	4	6	10	17	34	72	165
5.000	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	7	11	21	42
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5	8	13
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.40

A \ R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.03C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	836	838	844	855	870	889	914	944	979	1020	1060	1100	1140	1180	1220	1260	1300	1340	1380
0.04C	640	642	646	655	666	681	700	725	749	781	818	860	908	962	1020	1080	1140	1200	1260
0.045	506	507	511	517	526	538	553	571	592	617	646	679	717	760	810	865	928	999	***
0.05C	410	411	414	419	426	436	448	463	480	500	523	550	581	616	656	701	752	807	874
0.06C	285	285	288	291	296	303	311	321	333	347	364	382	404	428	456	487	522	562	607
0.07C	209	210	211	214	218	223	229	236	245	255	267	281	297	315	335	358	384	413	446
0.08C	140	141	142	144	147	151	155	161	168	176	185	195	205	215	227	241	256	274	294
0.09C	127	127	128	130	132	135	139	143	148	155	162	170	180	190	203	217	232	250	270
0.10C	103	103	104	105	107	109	112	116	120	125	131	138	146	154	164	176	188	203	219
0.12C	72	72	72	73	74	76	78	81	84	87	91	96	101	107	114	122	131	141	152
0.14C	53	53	53	54	55	56	58	59	62	64	67	71	75	79	84	90	96	104	112
0.16C	40	41	41	41	42	43	44	46	47	49	52	54	57	61	64	69	74	79	86
0.18C	32	32	32	33	33	34	35	36	37	39	41	43	45	48	51	54	58	63	68
0.20C	26	26	26	27	27	28	28	29	30	32	33	35	37	39	41	44	47	51	55
0.25C	17	17	17	17	18	18	18	19	20	20	21	22	24	25	27	28	30	33	35
0.30C	12	12	12	12	12	13	13	13	14	14	15	16	17	18	19	20	21	23	25
0.35C	9	9	9	9	9	9	10	10	10	11	11	12	12	13	14	15	16	17	18
0.40C	7	7	7	7	7	7	7	8	8	8	9	9	10	10	11	11	12	13	14
0.45C	6	6	6	6	6	6	6	6	6	7	7	7	8	8	9	9	10	10	11
0.50C	5	5	5	5	5	5	5	5	5	5	6	6	6	7	7	7	8	8	9
0.55C	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7	8
0.60C	3	3	3	3	3	4	4	4	4	4	4	4	5	5	5	5	6	6	6
0.65C	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	6
0.70C	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5
0.75C	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4
0.80C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
0.85C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
0.90C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
0.95C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
1.00C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
1.10C	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
1.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
1.30C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
1.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
1.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.70C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.90C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=40

A \ R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.030	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	947	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	698	715	760	854	936	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	484	526	573	627	688	757	835	925	***	***	***	***	***	***	***	***	***	***	***
0.080	370	403	439	480	527	580	640	708	786	875	978	***	***	***	***	***	***	***	***
0.090	293	318	347	379	414	458	505	559	621	692	773	866	975	***	***	***	***	***	***
0.100	237	258	281	307	337	371	409	453	503	560	626	702	790	892	***	***	***	***	***
0.120	169	179	195	214	234	258	284	314	349	389	434	487	548	619	702	800	915	***	***
0.140	121	132	144	157	172	189	209	231	256	285	319	357	402	454	515	587	671	771	889
0.160	93	101	110	120	132	145	160	177	196	218	244	273	307	347	394	448	513	589	679
0.180	73	80	87	95	104	114	126	140	155	172	192	216	243	274	310	353	404	464	535
0.200	60	65	70	77	84	93	102	113	125	140	156	174	196	221	251	286	326	375	432
0.250	38	41	45	49	54	59	65	72	80	89	99	111	125	141	160	182	207	238	274
0.300	27	29	31	34	38	41	45	50	55	62	69	77	86	97	110	125	143	163	188
0.350	20	21	23	25	28	30	33	37	41	45	50	56	63	71	80	91	104	119	136
0.400	15	16	18	19	21	23	25	28	31	34	38	43	48	54	61	69	78	90	103
0.450	12	13	14	15	17	18	20	22	24	27	30	34	38	42	48	54	61	70	80
0.500	10	11	11	12	14	15	16	18	20	22	24	27	30	34	38	43	49	56	64
0.550	8	9	10	10	11	12	13	15	16	18	20	22	25	28	31	35	40	45	52
0.600	7	7	8	9	9	10	11	12	14	15	17	18	21	23	26	29	33	37	43
0.650	6	6	7	7	8	9	10	11	12	13	14	16	17	19	22	24	28	31	36
0.700	5	6	6	6	7	8	8	9	10	11	12	13	15	16	18	21	23	26	30
0.750	5	5	5	6	6	7	7	8	9	9	10	12	13	14	16	18	20	23	26
0.800	4	4	4	5	5	6	6	7	8	8	9	10	11	12	14	15	17	19	22
0.850	4	4	4	4	5	5	6	6	7	7	8	9	10	11	12	13	15	17	19
0.900	3	3	4	4	4	5	5	5	6	6	7	8	9	9	11	12	13	15	17
0.950	3	3	3	4	4	4	5	5	5	6	6	7	8	8	9	10	12	13	14
1.000	3	3	3	3	4	4	4	4	5	5	6	6	7	7	8	9	10	11	13
1.100	2	2	3	3	3	3	3	4	4	4	5	5	6	6	7	7	8	9	10
1.200	2	2	2	2	3	3	3	3	3	4	4	4	5	5	5	6	7	7	8
1.300	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6	7	7
1.400	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	5	5	5	5
1.500	1	1	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5
1.600	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4
1.700	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3
1.800	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3
1.900	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3
2.000	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
 (R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

EX-40

A\R	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.03C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.03S	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04S	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.06C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.07C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.08C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.09C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.10C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.12C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.14C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.16C	787	916	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.18C	620	721	843	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.20C	500	582	680	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.25C	317	368	430	991	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.30C	218	233	294	674	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.35C	158	183	213	484	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.40C	119	137	160	361	901	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.45C	92	107	124	277	686	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.50C	73	85	98	218	533	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.55C	59	68	79	174	422	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.60C	49	56	65	141	339	894	***	***	***	***	***	***	***	***	***	***	***	***	***
0.65C	41	47	54	116	275	717	***	***	***	***	***	***	***	***	***	***	***	***	***
0.70C	34	39	45	96	225	581	***	***	***	***	***	***	***	***	***	***	***	***	***
0.75C	29	33	38	80	186	474	***	***	***	***	***	***	***	***	***	***	***	***	***
0.80C	25	28	33	68	155	390	***	***	***	***	***	***	***	***	***	***	***	***	***
0.85C	22	24	28	58	130	323	877	***	***	***	***	***	***	***	***	***	***	***	***
0.90C	19	21	24	49	110	268	720	***	***	***	***	***	***	***	***	***	***	***	***
0.95C	16	19	21	42	93	225	595	***	***	***	***	***	***	***	***	***	***	***	***
1.00C	14	16	18	36	79	189	493	***	***	***	***	***	***	***	***	***	***	***	***
1.10C	11	13	14	28	58	135	343	955	***	***	***	***	***	***	***	***	***	***	***
1.20C	9	10	11	21	44	99	243	657	***	***	***	***	***	***	***	***	***	***	***
1.30C	7	8	9	17	33	73	175	458	***	***	***	***	***	***	***	***	***	***	***
1.40C	6	7	7	13	26	55	127	324	904	***	***	***	***	***	***	***	***	***	***
1.50C	5	6	6	11	20	41	94	232	629	***	***	***	***	***	***	***	***	***	***
1.60C	4	5	5	9	16	32	70	168	443	***	***	***	***	***	***	***	***	***	***
1.70C	4	4	4	7	13	25	53	123	316	885	***	***	***	***	***	***	***	***	***
1.80C	3	3	3	4	6	10	19	40	92	228	619	***	***	***	***	***	***	***	***
1.90C	3	3	3	5	8	15	31	69	166	438	***	***	***	***	***	***	***	***	***
2.00C	2	3	3	4	7	12	24	52	122	314	882	***	***	***	***	***	***	***	***
2.20C	2	2	2	3	5	8	15	31	69	166	440	***	***	***	***	***	***	***	***
2.40C	2	2	2	2	4	6	10	19	40	92	229	627	***	***	***	***	***	***	***
2.60C	1	1	1	2	3	4	7	12	25	53	124	320	907	***	***	***	***	***	***
2.80C	1	1	1	2	2	3	5	8	16	32	70	171	435	***	***	***	***	***	***
3.00C	1	1	1	1	2	2	4	6	10	20	41	95	238	655	***	***	***	***	***
3.20C	1	1	1	1	1	2	3	4	7	13	25	55	129	336	957	***	***	***	***
3.40C	1	1	1	1	1	2	2	3	5	9	16	33	73	179	481	***	***	***	***
3.60C	1	1	1	1	1	1	2	2	4	6	11	21	43	99	232	698	***	***	***
3.80C	1	1	1	1	1	1	2	2	3	4	7	13	26	57	137	359	***	***	***
4.00C	1	1	1	1	1	1	1	2	2	3	5	9	17	34	77	191	516	***	***
4.50C	1	1	1	1	1	1	1	1	1	2	3	4	6	11	22	47	109	279	784
5.00C	1	1	1	1	1	1	1	1	1	1	2	3	5	8	15	29	65	157	***
5.50C	1	1	1	1	1	1	1	1	1	1	1	2	2	4	6	10	19	40	***
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	7	13	***
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	***
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	***
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
8.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=45

A\R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.030	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	979	980	988	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	749	751	756	755	779	797	819	846	877	914	958	***	***	***	***	***	***	***	***
0.045	592	593	598	605	616	630	647	668	693	723	757	796	841	892	951	***	***	***	***
0.050	480	481	484	490	499	510	524	541	562	585	613	645	681	723	770	824	885	954	***
0.060	333	334	336	341	347	354	364	376	390	407	426	446	473	502	535	572	615	663	717
0.070	245	245	247	250	255	261	268	276	287	299	313	329	348	369	393	421	452	487	527
0.080	188	188	189	192	195	200	205	212	220	229	240	252	266	283	301	322	346	373	404
0.090	148	149	150	152	154	158	162	167	174	181	190	199	211	223	238	255	273	293	319
0.100	120	121	121	123	125	128	131	136	141	147	154	162	171	181	193	206	222	239	258
0.120	84	84	84	86	87	89	91	94	98	102	107	112	119	126	134	143	154	166	180
0.140	62	62	62	63	64	66	67	69	72	75	79	83	87	93	99	105	113	122	132
0.160	47	47	48	48	49	50	52	53	55	58	60	63	67	71	76	81	87	94	101
0.180	37	38	38	38	39	40	41	42	44	46	48	50	53	56	60	64	69	74	80
0.200	30	31	31	31	32	32	33	34	36	37	39	41	43	46	49	52	56	60	65
0.250	20	20	20	20	20	21	21	22	23	24	25	26	28	29	31	33	36	39	42
0.300	14	14	14	14	14	15	15	16	16	17	18	18	19	21	22	23	25	27	29
0.350	10	10	10	10	11	11	11	12	12	12	13	14	14	15	16	17	18	20	21
0.400	8	8	8	8	8	8	9	9	9	10	10	11	11	12	13	14	15	16	16
0.450	6	6	6	6	7	7	7	7	7	8	8	8	9	9	10	11	11	12	13
0.500	5	5	5	5	5	5	6	6	6	6	7	7	7	8	8	9	9	10	11
0.550	4	4	4	4	5	5	5	5	5	5	6	6	6	6	7	7	8	8	9
0.600	4	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	7	7	8
0.650	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	6	6	6
0.700	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	5	5	6
0.750	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	5	5
0.800	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4
0.850	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4
0.900	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4
0.950	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
1.000	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
1.100	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.300	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.45

A/R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.03C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.03S	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04S	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.06C	779	850	930	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.07C	573	624	683	750	827	915	***	***	***	***	***	***	***	***	***	***	***	***	***
0.08C	439	476	523	574	633	702	777	866	969	***	***	***	***	***	***	***	***	***	***
0.09C	347	378	413	454	500	553	614	684	764	860	971	***	***	***	***	***	***	***	***
0.10C	281	306	335	368	405	448	497	554	620	697	786	892	***	***	***	***	***	***	***
0.12C	195	213	233	255	281	311	345	385	430	484	546	618	705	807	928	***	***	***	***
0.14C	143	154	171	188	207	229	254	283	316	355	400	454	517	592	681	787	915	***	***
0.16C	110	120	131	144	158	175	194	216	242	271	306	347	395	452	520	601	699	814	958
0.18C	87	95	103	114	125	138	153	171	191	214	242	274	312	357	410	474	551	643	755
0.20C	70	77	84	92	101	112	124	138	154	173	195	221	252	288	331	383	445	519	609
0.25C	45	49	54	59	65	72	79	88	99	111	125	141	160	183	210	243	282	329	385
0.30C	31	34	37	41	45	50	55	61	68	76	86	97	111	126	145	167	194	226	264
0.35C	23	25	27	30	33	36	40	45	50	56	63	71	81	92	105	121	140	163	191
0.40C	18	19	21	23	25	28	31	34	38	43	48	54	61	70	80	92	106	123	144
0.45C	14	15	17	18	20	22	24	27	30	33	37	42	48	54	62	71	82	96	111
0.50C	12	12	14	15	16	18	20	22	24	27	30	34	38	44	50	57	66	76	89
0.55C	10	10	11	12	13	15	16	18	20	22	25	28	31	35	40	46	53	61	71
0.60C	8	9	9	10	11	12	14	15	17	18	21	23	26	29	33	38	44	51	59
0.65C	7	7	8	9	10	10	12	13	14	16	17	19	22	25	28	32	37	42	49
0.70C	6	6	7	8	8	9	10	11	12	13	15	17	19	21	24	27	31	35	41
0.75C	5	6	6	7	7	8	9	9	10	12	13	14	16	18	20	23	26	30	35
0.80C	5	5	5	6	6	7	8	8	9	10	11	12	14	16	18	20	23	26	30
0.85C	4	4	5	5	6	6	7	7	8	9	10	11	12	14	15	17	20	22	26
0.90C	4	4	4	5	5	5	6	7	7	8	9	10	11	12	13	15	17	19	22
0.95C	3	4	4	4	5	5	5	6	6	7	8	8	9	11	12	13	15	17	19
1.00C	3	3	4	4	4	4	5	5	6	6	7	8	8	9	10	12	13	15	17
1.10C	3	3	3	3	3	3	4	4	4	5	5	6	6	7	7	8	9	10	12
1.20C	2	2	3	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10
1.30C	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6	6	7	8	8
1.40C	2	2	2	2	2	2	2	2	3	3	3	3	4	4	5	5	6	6	7
1.50C	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6
1.60C	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	4	5
1.70C	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4
1.80C	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4
1.90C	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3
2.00C	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3
2.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
2.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
2.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=0.45

A\R	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.030	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.055	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	890	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	710	851	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	454	537	639	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.300	311	367	436	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.350	224	265	314	792	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.400	169	199	236	589	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.450	130	154	182	450	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.500	103	121	143	351	963	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.550	83	98	115	279	757	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.600	68	80	94	225	603	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.650	57	66	77	184	486	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.700	47	55	65	151	396	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.750	40	47	54	124	325	931	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.800	34	40	46	105	268	759	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.850	29	34	39	89	223	622	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.900	25	29	34	76	187	513	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.950	22	25	29	64	157	426	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.000	19	22	26	55	133	354	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.100	15	17	20	41	96	249	716	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.200	12	13	15	31	71	178	496	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.300	10	11	12	24	53	129	349	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.400	8	9	10	19	40	95	249	722	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.500	6	7	8	15	31	71	180	505	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.600	5	6	7	12	24	53	131	358	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.700	4	5	5	10	19	41	97	257	752	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.800	4	4	5	8	15	31	73	186	529	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.900	3	4	4	7	12	25	55	137	376	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2.000	3	3	3	6	10	19	42	101	270	799	***	***	***	***	***	***	***	***	***	***	***	***	***
2.200	2	2	3	4	7	12	25	58	144	401	***	***	***	***	***	***	***	***	***	***	***	***	***
2.400	2	2	2	3	5	8	16	34	80	210	607	***	***	***	***	***	***	***	***	***	***	***	***
2.600	2	2	2	2	4	6	11	21	47	114	311	737	***	***	***	***	***	***	***	***	***	***	***
2.800	1	1	1	2	3	4	7	14	28	65	166	469	***	***	***	***	***	***	***	***	***	***	***
3.000	1	1	1	2	3	5	9	18	38	92	245	722	***	***	***	***	***	***	***	***	***	***	***
3.200	1	1	1	1	2	2	4	6	12	24	53	133	368	***	***	***	***	***	***	***	***	***	***
3.400	1	1	1	1	1	2	3	5	8	15	32	75	195	563	***	***	***	***	***	***	***	***	***
3.600	1	1	1	1	1	2	2	3	6	10	20	44	108	292	877	***	***	***	***	***	***	***	***
3.800	1	1	1	1	1	1	2	3	4	7	13	27	62	157	444	***	***	***	***	***	***	***	***
4.000	1	1	1	1	1	1	2	2	3	5	9	17	37	88	234	687	***	***	***	***	***	***	***
4.500	1	1	1	1	1	1	1	1	1	1	2	3	4	7	12	25	56	140	390	***	***	***	***
5.000	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5	9	17	36	96	228	671	***
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	6	12	24	55	138	***
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5	9	17	36	***
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	6	12	***
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	***
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	***
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

$C=0.50$

A \ R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	869	870	877	888	904	924	950	981	***	***	***	***	***	***	***	***	***	***	***
0.045	887	888	893	902	914	930	950	975	1004	1038	1078	1124	1177	1237	1304	1378	1459	1547	1641
0.050	954	957	961	968	978	992	1008	1028	1051	1079	1111	1148	1191	1240	1294	1354	1420	1493	1571
0.060	1084	1087	1090	1095	1102	1111	1122	1134	1148	1164	1181	1200	1220	1241	1263	1286	1310	1335	1361
0.070	1284	1285	1287	1290	1295	1302	1310	1321	1333	1347	1363	1380	1398	1417	1437	1457	1478	1500	1523
0.080	1518	1519	1520	1522	1526	1531	1538	1545	1553	1562	1572	1583	1594	1606	1618	1630	1643	1656	1670
0.090	1721	1722	1724	1726	1729	1733	1738	1744	1751	1758	1766	1774	1783	1792	1801	1811	1821	1831	1841
0.100	1939	1940	1941	1942	1945	1948	1952	1957	1963	1970	1978	1987	1996	2005	2014	2024	2033	2043	2053
0.120	97	97	98	99	101	103	104	109	113	118	124	130	136	142	148	154	160	166	172
0.140	71	72	72	73	74	76	78	80	84	87	91	96	101	106	111	115	120	125	130
0.160	55	55	55	56	57	58	60	62	64	67	70	74	78	82	85	89	94	101	109
0.180	43	43	44	44	45	46	47	49	51	53	55	58	61	65	70	74	80	86	94
0.200	35	35	36	36	37	37	38	40	41	43	45	47	50	53	56	60	65	70	76
0.250	23	23	23	23	24	24	25	26	27	28	29	30	32	34	36	39	42	45	49
0.300	16	16	16	16	17	17	17	18	19	19	20	21	22	24	25	27	29	31	34
0.350	12	12	12	12	12	13	13	13	14	14	15	16	17	18	19	20	21	23	25
0.400	9	9	9	9	10	10	10	10	11	11	12	12	13	14	15	16	17	18	19
0.450	7	7	7	7	8	8	8	8	9	9	9	10	10	11	11	12	13	14	15
0.500	6	6	6	6	6	6	7	7	7	7	8	8	8	9	9	10	11	12	12
0.550	5	5	5	5	5	5	6	6	6	6	6	7	7	7	8	8	9	10	10
0.600	4	4	4	4	4	5	5	5	5	5	5	6	6	6	7	7	8	8	9
0.650	4	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7
0.700	3	3	3	3	3	4	4	4	4	4	4	4	4	4	5	5	5	6	6
0.750	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	6
0.800	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5
0.850	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	5
0.900	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4
0.950	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4
1.000	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
1.100	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
1.200	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1.300	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
1.400	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
1.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
1.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.50

A\R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	916	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	673	736	808	891	987	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	515	563	619	682	756	841	940	***	***	***	***	***	***	***	***	***	***	***	***
0.090	407	445	489	539	597	664	743	834	941	***	***	***	***	***	***	***	***	***	***
0.100	330	361	396	437	484	538	601	675	762	865	987	***	***	***	***	***	***	***	***
0.120	229	250	275	303	336	374	417	469	529	600	685	785	906	***	***	***	***	***	***
0.140	168	184	202	223	247	274	307	344	388	440	502	576	665	772	901	***	***	***	***
0.160	129	141	155	171	189	210	235	263	297	337	384	440	508	590	688	808	954	***	***
0.180	102	111	122	135	149	166	185	208	234	266	303	347	401	465	542	637	752	892	***
0.200	83	90	99	109	121	134	150	168	190	215	245	281	324	375	438	514	606	720	859
0.250	53	58	63	70	77	86	96	107	121	137	156	179	206	238	278	326	384	455	543
0.300	37	40	44	48	54	59	66	74	84	95	108	123	142	164	191	224	263	312	371
0.350	27	30	32	36	39	44	49	54	61	69	78	90	103	119	139	162	190	225	268
0.400	21	23	25	27	30	33	37	41	47	53	60	68	78	90	105	122	143	169	201
0.450	17	18	20	22	24	26	29	33	37	41	47	53	61	70	81	95	111	131	154
0.500	13	15	16	17	19	21	24	26	29	33	37	43	49	56	65	75	88	104	123
0.550	11	12	13	14	16	17	19	22	24	27	31	35	40	46	53	61	71	84	99
0.600	9	10	11	12	13	15	16	18	20	23	25	29	33	38	43	50	59	69	81
0.650	8	9	9	10	11	12	14	15	17	19	21	24	28	32	36	42	49	57	67
0.700	7	8	8	9	10	11	12	13	15	16	18	21	23	27	31	35	41	48	56
0.750	6	7	7	8	8	9	10	11	13	14	16	18	20	23	26	30	35	40	47
0.800	5	6	6	7	7	8	9	10	11	12	14	15	17	20	22	26	30	34	40
0.850	5	5	6	6	7	7	8	9	10	11	12	13	15	17	19	22	26	30	34
0.900	4	5	5	5	6	6	7	8	9	9	11	12	13	15	17	19	22	26	30
0.950	4	4	5	5	5	6	6	7	8	8	9	10	12	13	15	17	19	22	26
1.000	4	4	4	4	5	5	6	6	7	8	8	9	10	12	13	15	17	20	23
1.100	3	3	3	3	4	4	4	5	5	6	6	7	7	8	9	10	12	13	15
1.200	3	3	3	3	3	4	4	4	5	5	6	6	7	7	8	9	11	12	14
1.300	2	2	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10	11
1.400	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9
1.500	2	2	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6	6	7
1.600	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6
1.700	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	5	5
1.800	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4
1.900	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4
2.000	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3
2.200	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.50

A/R	3.90	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.035	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.040	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	651	785	951	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.300	445	535	648	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.350	320	385	465	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.400	240	288	347	960	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.450	185	222	267	730	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.500	146	175	210	568	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.550	117	143	168	449	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.600	96	114	136	360	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.650	79	94	112	292	861	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.700	66	79	93	239	696	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.750	56	66	78	198	567	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.800	47	56	66	165	465	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.850	40	47	56	138	384	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.900	35	41	48	116	319	984	***	***	***	***	***	***	***	***	***	***	***	***	***
0.950	30	35	41	99	266	809	***	***	***	***	***	***	***	***	***	***	***	***	***
1.000	25	30	36	84	223	666	***	***	***	***	***	***	***	***	***	***	***	***	***
1.100	20	23	27	62	159	461	***	***	***	***	***	***	***	***	***	***	***	***	***
1.200	16	18	21	46	115	324	***	***	***	***	***	***	***	***	***	***	***	***	***
1.300	12	14	16	35	85	230	702	***	***	***	***	***	***	***	***	***	***	***	***
1.400	10	11	13	27	63	166	491	***	***	***	***	***	***	***	***	***	***	***	***
1.500	8	9	10	21	48	122	347	***	***	***	***	***	***	***	***	***	***	***	***
1.600	7	8	9	17	37	90	249	770	***	***	***	***	***	***	***	***	***	***	***
1.700	6	6	7	13	28	68	180	540	***	***	***	***	***	***	***	***	***	***	***
1.800	5	5	6	11	22	51	152	383	***	***	***	***	***	***	***	***	***	***	***
1.900	4	4	5	9	18	39	98	275	866	***	***	***	***	***	***	***	***	***	***
2.000	4	4	4	7	14	30	74	700	608	***	***	***	***	***	***	***	***	***	***
2.200	3	3	3	5	9	19	43	109	310	990	***	***	***	***	***	***	***	***	***
2.400	2	2	2	4	6	12	26	62	165	492	***	***	***	***	***	***	***	***	***
2.600	2	2	2	3	5	8	16	37	91	255	802	***	***	***	***	***	***	***	***
2.800	1	2	2	2	3	6	11	23	53	138	405	***	***	***	***	***	***	***	***
3.000	1	1	1	2	3	4	7	14	32	78	213	658	***	***	***	***	***	***	***
3.200	1	1	1	2	2	3	5	10	20	45	117	337	***	***	***	***	***	***	***
3.400	1	1	1	1	2	2	4	7	13	28	67	180	546	***	***	***	***	***	***
3.600	1	1	1	1	1	2	3	5	9	17	39	100	284	905	***	***	***	***	***
3.800	1	1	1	1	1	2	2	4	6	12	24	58	153	457	***	***	***	***	***
4.000	1	1	1	1	1	1	2	3	4	8	16	35	86	240	753	***	***	***	***
4.500	1	1	1	1	1	1	1	2	2	4	6	11	24	57	151	451	***	***	***
5.000	1	1	1	1	1	1	1	1	1	2	3	5	9	17	39	98	277	885	***
5.500	1	1	1	1	1	1	1	1	1	1	2	2	4	7	13	27	65	175	531
6.000	1	1	1	1	1	1	1	1	1	1	1	2	2	3	5	9	19	44	113
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	7	14	39
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	6	10
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
 (R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=55

A/R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.040	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	791	792	798	809	822	841	864	893	926	966	***	***	***	***	***	***	***	***	***
0.050	641	642	647	655	666	681	700	723	751	783	820	864	913	971	***	***	***	***	***
0.060	445	446	449	455	463	473	486	502	521	544	570	600	635	674	720	772	832	901	980
0.070	327	328	330	334	340	348	358	369	383	400	419	441	466	496	529	568	612	662	720
0.080	251	251	253	256	261	266	274	283	293	306	321	338	357	380	405	435	468	507	551
0.090	198	198	200	202	206	211	216	224	232	242	253	267	282	300	320	343	370	401	436
0.100	161	161	162	164	167	171	175	181	188	196	205	216	229	243	259	278	300	325	353
0.120	112	112	113	114	116	119	122	126	131	136	143	150	159	169	180	193	208	225	245
0.140	82	82	83	84	85	87	90	93	96	100	105	111	117	124	133	142	153	166	180
0.160	63	63	64	64	66	67	69	71	74	77	81	85	90	95	102	109	117	127	138
0.180	50	50	50	51	52	53	54	56	58	61	64	67	71	75	80	86	93	100	109
0.200	41	41	41	41	42	43	44	46	47	49	52	54	58	61	65	70	75	81	88
0.250	26	26	26	27	27	28	28	29	30	32	33	35	37	39	42	45	48	52	57
0.300	18	18	18	19	19	19	20	21	21	22	23	24	26	27	29	31	34	36	39
0.350	14	14	14	14	14	14	15	15	16	16	17	18	19	20	22	23	25	27	29
0.400	11	11	11	11	11	11	11	12	12	13	13	14	15	16	17	18	19	21	22
0.450	8	8	8	9	9	9	9	9	10	10	11	11	12	12	13	14	15	16	18
0.500	7	7	7	7	7	7	7	8	8	9	9	9	10	10	11	12	12	13	14
0.550	6	6	6	6	6	6	6	6	7	7	7	8	8	8	9	10	10	11	12
0.600	5	5	5	5	5	5	5	5	6	6	6	6	7	7	7	8	9	9	10
0.650	4	4	4	4	4	5	5	5	5	5	5	6	6	6	7	7	7	8	9
0.700	4	4	4	4	4	4	4	4	4	4	4	5	5	5	6	6	6	7	7
0.750	3	3	3	3	3	4	4	4	4	4	4	4	5	5	5	5	6	6	7
0.800	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	6
0.850	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	5	5	5
0.900	2	2	2	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5
0.950	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4
1.000	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4
1.100	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
1.200	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
1.300	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.55

A\R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.04C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.06C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.07C	786	863	932	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.08C	622	661	729	808	900	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.09C	476	522	576	638	711	796	397	***	***	***	***	***	***	***	***	***	***	***	***
0.10C	385	423	467	517	576	645	726	822	937	***	***	***	***	***	***	***	***	***	***
0.12C	268	294	324	359	400	448	504	571	650	746	861	***	***	***	***	***	***	***	***
0.14C	197	216	238	264	294	329	370	419	477	547	631	733	858	***	***	***	***	***	***
0.16C	151	165	182	202	225	252	283	320	365	418	483	560	655	771	913	***	***	***	***
0.18C	119	131	144	159	177	199	223	253	288	330	381	442	516	607	719	857	***	***	***
0.20C	97	106	117	129	144	161	181	205	233	267	308	357	417	491	581	692	830	***	***
0.25C	62	68	75	83	92	103	115	130	148	170	196	227	265	311	368	438	524	632	767
0.30C	43	47	52	57	64	71	80	90	102	117	135	156	182	214	252	300	359	432	523
0.35C	32	35	38	42	47	52	59	66	75	85	98	114	132	155	183	217	259	311	377
0.40C	24	27	29	32	36	40	45	50	57	65	74	86	100	117	138	163	195	233	282
0.45C	19	21	23	25	28	31	35	39	45	51	58	67	78	91	107	126	150	180	217
0.50C	16	17	19	21	23	25	28	32	36	41	47	54	62	72	85	100	119	142	171
0.55C	13	14	15	17	19	21	23	26	29	33	38	44	51	59	69	81	96	114	137
0.60C	11	12	13	14	16	17	19	22	24	28	32	36	42	48	57	66	79	93	112
0.65C	9	10	11	12	13	15	16	18	21	23	27	30	35	40	47	55	65	77	92
0.70C	8	9	10	10	11	13	14	16	18	20	23	26	30	34	40	46	55	64	77
0.75C	7	8	8	9	10	11	12	14	15	17	19	22	25	29	34	39	46	54	65
0.80C	6	7	7	8	9	10	11	12	13	15	17	19	22	25	29	34	39	46	55
0.85C	6	6	6	7	8	8	9	10	12	13	15	17	19	22	25	29	34	40	47
0.90C	5	5	6	6	7	8	8	9	10	11	13	15	16	19	22	25	29	34	40
0.95C	4	5	5	6	6	7	7	8	9	10	11	13	14	17	19	22	25	30	35
1.00C	4	4	5	5	6	6	7	7	8	9	10	11	13	15	17	19	22	26	30
1.10C	3	4	4	4	5	5	5	6	7	7	8	9	10	11	13	15	17	20	23
1.20C	3	3	3	4	4	4	5	5	6	7	7	8	9	10	12	14	16	18	18
1.30C	3	3	3	3	3	4	4	4	5	5	6	7	8	8	10	11	12	14	14
1.40C	2	2	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10	11
1.50C	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9
1.60C	2	2	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6	7	8
1.70C	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	5	5	6	8
1.80C	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	5	5	5
1.90C	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	4	4	5	5
2.00C	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4
2.20C	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3
2.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
2.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.55

A\R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.04C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.06C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.07C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.08C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.09C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.10C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.12C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.14C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.16C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.18C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.20C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.25C	935	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.30C	637	781	963	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.35C	458	561	690	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.40C	342	418	514	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.45C	263	321	393	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.50C	207	252	308	918	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.55C	166	201	245	722	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.60C	134	163	198	576	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.65C	111	133	162	465	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.70C	92	111	134	379	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.75C	77	92	112	311	992	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.80C	65	78	94	257	808	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.85C	55	66	79	214	662	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.90C	47	56	68	180	546	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.95C	41	48	58	151	452	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.00C	35	42	50	128	377	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.10C	27	32	37	93	265	857	***	***	***	***	***	***	***	***	***	***	***	***	***
1.20C	21	24	28	69	189	591	***	***	***	***	***	***	***	***	***	***	***	***	***
1.30C	16	19	22	51	137	414	***	***	***	***	***	***	***	***	***	***	***	***	***
1.40C	13	15	17	39	100	293	975	***	***	***	***	***	***	***	***	***	***	***	***
1.50C	11	12	14	30	75	211	677	***	***	***	***	***	***	***	***	***	***	***	***
1.60C	9	10	11	23	56	153	476	***	***	***	***	***	***	***	***	***	***	***	***
1.70C	7	8	9	19	43	113	336	***	***	***	***	***	***	***	***	***	***	***	***
1.80C	6	7	8	15	33	84	243	800	***	***	***	***	***	***	***	***	***	***	***
1.90C	5	6	7	12	26	63	177	562	***	***	***	***	***	***	***	***	***	***	***
2.00C	4	5	5	10	20	48	130	399	***	***	***	***	***	***	***	***	***	***	***
2.20C	3	4	4	7	13	27	73	208	676	***	***	***	***	***	***	***	***	***	***
2.40C	3	3	3	5	9	18	43	114	343	***	***	***	***	***	***	***	***	***	***
2.60C	2	2	2	4	6	12	26	64	182	583	***	***	***	***	***	***	***	***	***
2.80C	2	2	2	3	4	8	16	38	100	300	***	***	***	***	***	***	***	***	***
3.00C	1	2	2	2	3	6	11	23	58	161	509	***	***	***	***	***	***	***	***
3.20C	1	1	1	2	3	4	7	15	34	90	265	888	***	***	***	***	***	***	***
3.40C	1	1	1	2	2	3	5	10	21	52	143	448	***	***	***	***	***	***	***
3.60C	1	1	1	1	2	2	4	7	14	31	81	235	780	***	***	***	***	***	***
3.80C	1	1	1	1	1	2	3	5	9	20	47	129	397	***	***	***	***	***	***
4.00C	1	1	1	1	1	2	2	4	6	13	29	73	210	690	***	***	***	***	***
4.50C	1	1	1	1	1	1	1	2	3	5	10	21	51	140	439	***	***	***	***
5.00C	1	1	1	1	1	1	1	1	2	3	4	8	16	36	95	285	968	***	***
5.50C	1	1	1	1	1	1	1	1	1	2	2	4	6	12	26	66	189	612	***
6.00C	1	1	1	1	1	1	1	1	1	1	2	3	5	9	20	47	128	395	***
6.50C	1	1	1	1	1	1	1	1	1	1	1	2	3	4	7	15	34	88	***
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6	11	25	***
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	9	***
8.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	***
8.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	***
9.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	***
9.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	***



NUMBER OF WEAPONS OF LEthal RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

5-62

	0.15	0.17	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.150	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.160	007	007	016	027	044	065	092	000	000	000	000	000	000	000	000	000	000	000	000
0.170	035	035	047	051	064	082	104	030	062	089	093	000	000	000	000	000	000	000	000
0.180	011	012	015	022	031	043	058	077	098	064	054	089	030	076	030	092	063	000	000
0.190	035	036	039	044	050	059	070	084	100	059	081	050	036	071	010	055	007	068	037
0.200	087	088	090	094	099	106	114	125	137	101	108	108	011	037	067	052	042	088	041
0.220	027	028	029	032	036	042	048	057	066	078	091	107	125	145	169	197	028	064	036
0.100	044	046	048	049	051	054	058	062	067	073	079	086	093	100	107	114	121	128	135
0.120	028	029	030	031	033	036	039	042	045	049	053	057	061	065	069	073	077	081	085
0.140	04	04	05	05	06	06	07	07	08	08	09	09	10	10	11	11	12	12	13
0.160	07	07	07	07	07	07	07	07	08	08	09	09	10	10	11	12	12	13	14
0.180	05	05	05	05	05	05	05	05	06	06	06	07	07	07	08	08	09	09	10
0.200	06	06	06	06	06	06	06	06	06	07	07	07	08	08	09	09	10	11	12
0.250	030	030	030	031	031	032	033	034	035	036	038	040	042	045	048	052	056	060	064
0.300	021	021	021	021	022	022	023	024	025	027	028	030	031	034	036	039	042	046	050
0.350	015	016	016	016	016	016	017	017	018	019	020	021	022	023	025	027	029	031	034
0.400	012	012	012	012	012	013	013	014	015	015	016	017	018	019	020	022	024	026	028
0.450	010	010	010	010	010	010	010	011	011	012	012	013	013	014	015	016	017	019	020
0.500	08	08	08	08	08	08	09	09	09	09	10	10	11	12	12	13	14	15	17
0.550	07	07	07	07	07	07	07	07	08	08	08	09	09	10	10	11	12	13	14
0.600	06	06	06	06	06	06	06	06	06	07	07	07	08	08	09	09	10	11	12
0.650	05	05	05	05	05	05	05	05	06	06	06	06	07	07	07	08	09	09	10
0.700	04	04	04	04	04	04	04	05	05	05	05	06	06	06	06	07	07	08	09
0.750	04	04	04	04	04	04	04	04	04	04	05	05	05	05	05	06	06	07	08
0.800	03	03	03	03	03	03	03	04	04	04	04	04	05	05	05	05	06	06	07
0.850	03	03	03	03	03	03	03	03	03	03	04	04	04	04	04	05	05	05	06
0.900	03	03	03	03	03	03	03	03	03	03	03	04	04	04	04	04	05	05	05
0.950	03	03	03	03	03	03	03	03	03	03	03	03	03	04	04	04	04	05	05
1.000	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4
1.100	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4
1.200	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4
1.300	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
1.400	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
1.500	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
1.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.60

A \ R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.04C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04S	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.06C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.07C	918	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.08C	703	774	858	956	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.09C	555	612	678	755	847	955	***	***	***	***	***	***	***	***	***	***	***	***	***
0.10C	450	495	549	612	686	774	878	***	***	***	***	***	***	***	***	***	***	***	***
0.12C	312	344	381	425	476	537	609	697	802	930	***	***	***	***	***	***	***	***	***
0.14C	229	253	280	312	350	394	447	511	589	682	797	938	***	***	***	***	***	***	***
0.16C	176	194	214	239	267	302	342	391	450	521	609	716	849	***	***	***	***	***	***
0.18C	139	153	169	189	211	238	270	309	355	411	480	564	669	798	958	***	***	***	***
0.20C	112	124	137	153	171	193	219	250	287	332	388	456	540	644	773	935	***	***	***
0.25C	72	79	88	98	109	123	139	159	183	211	246	289	342	408	489	591	719	881	***
0.30C	50	55	61	69	76	85	96	110	126	146	170	199	235	280	335	404	491	601	740
0.35C	37	40	45	50	55	62	70	80	92	106	123	145	170	202	242	292	354	432	531
0.40C	28	31	34	38	42	47	54	61	70	80	93	109	129	153	182	219	265	323	396
0.45C	22	24	27	30	33	37	42	48	55	63	73	85	100	118	141	169	204	249	304
0.50C	18	20	22	24	27	30	34	38	44	50	58	68	80	94	112	134	161	196	239
0.55C	15	16	18	20	22	25	28	31	36	41	47	55	65	76	90	108	130	157	191
0.60C	13	14	15	17	19	21	23	26	30	34	39	46	53	62	74	88	106	128	155
0.65C	11	12	13	14	16	18	20	22	25	29	33	38	44	52	61	73	87	105	127
0.70C	9	10	11	12	13	15	17	19	21	24	28	32	37	44	52	61	73	87	106
0.75C	8	9	10	11	12	13	14	16	18	21	24	27	32	37	44	52	61	73	89
0.80C	7	8	8	9	10	11	13	14	16	18	21	24	27	32	37	44	52	62	75
0.85C	6	7	8	8	9	10	11	12	14	16	18	21	24	27	32	38	45	53	63
0.90C	6	6	7	7	8	9	10	11	12	14	16	18	21	24	28	33	38	45	54
0.95C	5	6	6	7	7	8	9	10	11	12	14	16	18	21	24	28	33	39	47
1.00C	5	5	5	6	6	7	8	9	10	11	12	14	16	18	21	25	29	34	40
1.10C	4	4	5	5	5	6	6	7	8	9	10	11	13	14	16	19	22	26	31
1.20C	3	4	4	4	4	5	5	6	6	7	8	9	10	11	13	15	17	20	24
1.30C	3	3	3	4	4	4	4	5	5	6	7	7	8	9	11	12	14	16	18
1.40C	3	3	3	3	3	4	4	4	5	5	5	6	7	8	9	10	11	13	15
1.50C	2	2	2	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10	12
1.60C	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6	7	7	8	10
1.70C	2	2	2	2	2	2	3	3	3	3	3	4	4	5	5	6	6	7	8
1.80C	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6	7
1.90C	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	6
2.00C	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5
2.20C	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	4
2.40C	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3
2.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
2.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
3.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3.20C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.40C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.60C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.80C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.60

A\R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.04C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.04S	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.05C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.06C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.07C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.08C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.09C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.10C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.12C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.14C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.16C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.18C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.20C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.25C	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.30C	917	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.35C	657	819	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.40C	490	608	761	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.45C	375	465	581	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.50C	294	364	453	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.55C	234	289	359	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.60C	190	234	289	924	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.65C	155	191	236	742	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.70C	129	157	194	601	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.75C	107	131	161	491	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.80C	90	110	134	404	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.85C	76	93	113	334	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.90C	65	79	96	278	937	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.95C	56	67	82	233	771	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.00C	48	58	70	196	637	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.10C	36	43	52	141	441	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.20C	28	33	39	102	310	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.30C	22	25	30	76	222	747	***	***	***	***	***	***	***	***	***	***	***	***	***
1.40C	17	20	23	57	160	521	***	***	***	***	***	***	***	***	***	***	***	***	***
1.50C	14	16	18	43	118	368	***	***	***	***	***	***	***	***	***	***	***	***	***
1.60C	11	13	15	33	87	264	917	***	***	***	***	***	***	***	***	***	***	***	***
1.70C	9	10	12	26	66	191	641	***	***	***	***	***	***	***	***	***	***	***	***
1.80C	7	8	10	20	50	160	453	***	***	***	***	***	***	***	***	***	***	***	***
1.90C	6	7	8	16	38	104	323	***	***	***	***	***	***	***	***	***	***	***	***
2.00C	5	6	7	13	30	78	234	809	***	***	***	***	***	***	***	***	***	***	***
2.20C	4	4	5	9	19	45	126	406	***	***	***	***	***	***	***	***	***	***	***
2.40C	3	3	4	6	12	27	71	212	730	***	***	***	***	***	***	***	***	***	***
2.60C	2	3	3	4	8	17	42	116	370	***	***	***	***	***	***	***	***	***	***
2.80C	2	2	2	3	6	11	25	66	195	660	***	***	***	***	***	***	***	***	***
3.00C	2	2	2	3	4	8	16	39	108	342	***	***	***	***	***	***	***	***	***
3.20C	1	1	2	2	3	6	11	24	62	182	617	***	***	***	***	***	***	***	***
3.40C	1	1	1	2	3	4	7	15	37	101	318	***	***	***	***	***	***	***	***
3.60C	1	1	1	1	2	3	5	10	23	58	170	575	***	***	***	***	***	***	***
3.80C	1	1	1	1	2	2	4	7	15	35	95	290	***	***	***	***	***	***	***
4.00C	1	1	1	1	1	2	3	5	10	22	55	161	538	***	***	***	***	***	***
4.50C	1	1	1	1	1	1	2	3	4	8	17	41	113	364	***	***	***	***	***
5.00C	1	1	1	1	1	1	1	2	2	4	6	13	30	81	251	888	***	***	***
5.50C	1	1	1	1	1	1	1	1	1	2	3	5	10	23	59	175	595	***	***
6.00C	1	1	1	1	1	1	1	1	1	1	2	3	4	8	18	44	125	405	***
6.50C	1	1	1	1	1	1	1	1	1	1	1	2	2	4	7	14	33	90	280
7.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6	11	25	66
7.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	7	19
8.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	7
8.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3
9.00C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
9.50C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
 (R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E-65

A \ R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	842	844	850	861	876	896	921	951	988	***	***	***	***	***	***	***	***	***	***
0.060	585	586	590	598	608	622	640	661	686	716	731	791	839	893	955	***	***	***	***
0.070	430	431	434	439	447	457	470	486	504	523	552	582	616	656	703	756	818	890	974
0.080	329	330	332	336	342	350	360	372	386	403	423	444	472	503	538	579	626	681	745
0.090	260	261	263	266	271	277	285	294	305	318	334	352	373	397	425	458	495	538	589
0.100	211	211	213	216	219	224	231	238	247	258	271	285	302	322	344	371	401	436	477
0.120	147	147	148	150	152	156	160	166	172	179	188	198	210	224	239	258	279	303	331
0.140	108	108	109	110	112	115	118	122	126	132	138	146	154	164	176	189	205	223	244
0.160	83	83	83	84	86	88	90	93	97	101	106	112	118	126	135	145	157	171	186
0.180	65	66	66	67	68	70	72	74	77	80	84	88	94	100	107	115	124	135	147
0.200	53	53	54	54	55	56	58	60	62	65	68	72	76	81	86	93	100	109	119
0.250	34	34	34	35	36	36	37	39	40	42	44	46	49	52	55	60	64	70	76
0.300	24	24	24	24	25	25	26	27	28	29	30	32	34	36	39	41	45	49	53
0.350	18	18	18	18	18	19	19	20	21	22	23	24	25	27	28	31	33	36	39
0.400	14	14	14	14	14	14	15	15	16	17	17	18	19	21	22	23	25	27	30
0.450	11	11	11	11	11	12	12	12	13	13	14	15	15	16	17	19	20	22	24
0.500	9	9	9	9	9	9	10	10	10	11	11	12	13	13	14	15	16	18	19
0.550	7	7	8	8	8	8	8	8	9	9	9	10	10	11	12	13	14	15	16
0.600	6	6	6	6	7	7	7	7	8	8	8	9	9	9	10	11	11	12	13
0.650	5	5	6	6	6	6	6	6	7	7	7	8	8	8	9	9	10	11	11
0.700	5	5	5	5	5	5	5	5	6	6	6	6	7	7	7	8	8	9	10
0.750	4	4	4	4	4	4	5	5	5	5	5	6	6	6	7	7	7	8	9
0.800	4	4	4	4	4	4	4	4	4	5	5	5	5	5	6	6	7	7	8
0.850	3	3	3	3	4	4	4	4	4	4	4	4	4	5	5	5	6	6	7
0.900	3	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5	6	6
0.950	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5
1.000	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5
1.100	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4
1.200	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4
1.300	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
1.400	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3
1.500	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
1.600	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
1.700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
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E=.45

A\R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	820	908	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	648	717	799	896	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	525	581	647	726	819	932	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	365	403	449	504	569	647	741	855	995	***	***	***	***	***	***	***	***	***	***
0.140	268	296	330	370	418	475	544	627	730	856	***	***	***	***	***	***	***	***	***
0.160	205	227	253	283	319	363	416	480	558	654	773	921	***	***	***	***	***	***	***
0.180	162	179	200	224	252	287	328	378	440	516	609	726	871	***	***	***	***	***	***
0.200	131	145	162	181	204	232	265	306	356	417	492	586	703	850	***	***	***	***	***
0.250	84	93	103	116	130	148	169	195	226	265	312	372	445	538	654	803	991	***	***
0.300	58	64	72	80	90	102	117	134	156	182	215	255	305	368	448	548	676	840	***
0.350	43	47	53	59	66	75	85	98	114	133	156	185	221	266	323	395	486	603	753
0.400	33	36	40	45	50	57	65	74	86	100	118	140	167	200	242	296	363	450	561
0.450	26	29	32	35	40	45	51	58	67	78	92	109	129	155	187	228	279	345	429
0.500	21	23	26	28	32	36	41	47	54	63	73	86	103	123	148	180	220	271	336
0.550	17	19	21	23	26	30	34	38	44	51	60	71	83	99	119	144	176	216	268
0.600	15	16	18	20	22	25	28	32	36	42	49	58	68	81	97	118	143	175	217
0.650	12	14	15	17	19	21	24	27	31	35	41	48	57	67	81	97	118	144	177
0.700	11	12	13	14	16	18	20	23	26	30	35	41	48	57	67	81	98	119	146
0.750	9	10	11	12	14	15	17	20	22	26	30	35	41	48	57	68	82	100	122
0.800	8	9	10	11	12	13	15	17	19	22	26	30	35	41	48	58	70	84	103
0.850	7	8	9	10	11	12	13	15	17	19	22	26	30	35	42	49	59	71	87
0.900	7	7	8	9	9	10	12	13	15	17	19	22	26	30	36	43	51	61	74
0.950	6	6	7	8	8	9	10	12	13	15	17	20	23	26	31	37	44	52	63
1.000	5	6	6	7	8	8	9	10	12	13	15	17	20	23	27	32	38	45	54
1.100	4	5	5	6	6	7	8	8	9	11	12	14	16	18	21	25	29	34	41
1.200	4	4	4	5	5	6	6	7	8	9	10	11	12	14	16	19	22	26	31
1.300	3	3	4	4	4	5	5	6	6	7	8	9	10	11	13	15	18	21	24
1.400	3	3	3	3	4	4	4	5	5	6	7	7	8	9	11	12	14	16	19
1.500	2	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10	11	13	15
1.600	2	2	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9	11	12
1.700	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6	7	8	9	10
1.800	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6	6	7	8
1.900	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6	7
2.000	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6
2.200	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4	4
2.400	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3
2.600	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.65

A/R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.300	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.350	948	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.400	704	890	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.450	538	678	862	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.500	420	528	669	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.550	334	419	529	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.600	269	337	424	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.650	220	274	344	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.700	181	225	282	957	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.750	150	186	233	777	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.800	126	156	194	636	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.850	106	131	162	523	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.900	90	111	137	433	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.950	77	94	116	361	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.000	66	80	99	302	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.100	49	60	72	214	740	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.200	37	45	54	154	513	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.300	29	34	41	112	361	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.400	22	27	32	83	258	931	***	***	***	***	***	***	***	***	***	***	***	***	***
1.500	18	21	25	63	186	648	***	***	***	***	***	***	***	***	***	***	***	***	***
1.600	14	17	19	48	136	456	***	***	***	***	***	***	***	***	***	***	***	***	***
1.700	12	13	16	37	101	325	***	***	***	***	***	***	***	***	***	***	***	***	***
1.800	9	11	13	29	76	235	850	***	***	***	***	***	***	***	***	***	***	***	***
1.900	8	9	10	22	57	171	597	***	***	***	***	***	***	***	***	***	***	***	***
2.000	7	7	9	18	44	126	424	***	***	***	***	***	***	***	***	***	***	***	***
2.200	5	5	6	12	27	71	221	800	***	***	***	***	***	***	***	***	***	***	***
2.400	4	4	4	8	17	42	120	403	***	***	***	***	***	***	***	***	***	***	***
2.600	3	3	3	6	11	26	68	211	766	***	***	***	***	***	***	***	***	***	***
2.800	2	2	3	4	8	16	40	116	388	***	***	***	***	***	***	***	***	***	***
3.000	2	2	2	3	5	11	25	66	205	743	***	***	***	***	***	***	***	***	***
3.200	2	2	2	3	4	7	16	39	113	378	***	***	***	***	***	***	***	***	***
3.400	1	1	2	2	3	5	11	24	65	201	727	***	***	***	***	***	***	***	***
3.600	1	1	1	2	2	4	7	16	38	111	371	***	***	***	***	***	***	***	***
3.800	1	1	1	1	2	3	5	10	24	63	197	715	***	***	***	***	***	***	***
4.000	1	1	1	1	2	2	4	7	15	38	109	366	***	***	***	***	***	***	***
4.500	1	1	1	1	1	2	2	3	6	12	29	82	264	991	***	***	***	***	***
5.000	1	1	1	1	1	1	1	2	3	5	10	23	62	192	696	***	***	***	***
5.500	1	1	1	1	1	1	1	1	2	3	4	8	18	48	142	495	***	***	***
6.000	1	1	1	1	1	1	1	1	1	2	2	4	7	15	37	106	357	***	***
6.500	1	1	1	1	1	1	1	1	1	1	1	2	3	6	12	29	81	260	978
7.000	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	10	23	62	191
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	8	18	48
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	7	15
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.70

A\R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	766	967	975	987	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	671	672	677	686	698	714	734	758	787	822	862	910	965	***	***	***	***	***	***
0.070	493	494	498	504	513	524	539	557	578	604	634	669	709	756	811	874	948	***	***
0.080	377	378	381	386	393	402	413	427	443	462	485	512	543	579	621	669	726	792	870
0.090	298	299	301	305	310	317	326	337	350	366	384	405	429	458	491	529	574	626	687
0.100	242	242	244	247	251	257	264	273	284	296	311	328	348	371	397	429	465	507	557
0.120	168	168	170	172	175	179	184	190	197	206	216	228	242	258	276	298	323	352	387
0.140	124	124	125	126	129	131	135	140	144	151	159	167	178	189	203	219	237	259	284
0.160	95	95	96	97	99	101	104	107	111	116	122	128	136	145	155	168	182	198	218
0.180	75	75	76	77	78	80	82	85	88	92	96	101	108	115	123	132	144	157	172
0.200	61	61	61	62	63	65	66	69	71	74	78	82	87	93	100	107	116	127	139
0.250	39	39	39	40	41	42	43	44	46	48	50	53	56	60	64	69	75	81	89
0.300	27	27	28	28	28	29	30	31	32	33	35	37	39	42	44	48	52	56	62
0.350	20	20	20	21	21	21	22	23	24	25	26	27	29	31	33	35	38	42	45
0.400	16	16	16	16	16	17	17	18	18	19	20	21	22	24	25	27	29	32	35
0.450	12	12	13	13	13	13	14	14	15	16	17	18	19	20	21	23	25	28	30
0.500	10	10	10	10	11	11	11	11	12	12	13	14	15	16	17	19	20	22	24
0.550	8	8	9	9	9	9	9	10	10	10	11	11	12	13	13	14	16	17	18
0.600	7	7	7	7	7	8	8	8	9	9	10	10	11	11	12	13	14	16	17
0.650	6	6	6	6	6	7	7	7	7	8	8	9	9	10	10	11	12	13	14
0.700	5	5	5	6	6	6	6	6	6	7	7	7	8	8	9	10	11	11	11
0.750	5	5	5	5	5	5	5	5	6	6	6	6	7	7	7	8	9	9	10
0.800	4	4	4	4	4	5	5	5	5	5	5	5	6	6	6	7	7	8	9
0.850	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7	8
0.900	3	3	3	4	4	4	4	4	4	4	4	4	4	5	5	5	6	6	7
0.950	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	6	6
1.000	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	6
1.100	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5
1.200	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4
1.300	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
1.400	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
1.500	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
1.600	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1.700	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.70

A\R	1.00	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	961	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	760	845	947	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	615	685	767	866	985	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	427	475	533	601	684	784	907	***	***	***	***	***	***	***	***	***	***	***	***
0.140	314	349	391	441	502	576	666	777	914	***	***	***	***	***	***	***	***	***	***
0.160	240	267	299	338	384	440	509	594	698	828	991	***	***	***	***	***	***	***	***
0.180	190	211	236	267	303	347	402	468	550	653	781	941	***	***	***	***	***	***	***
0.200	154	171	191	216	245	281	325	378	445	527	630	760	924	***	***	***	***	***	***
0.250	98	109	122	138	156	179	207	241	283	335	400	481	584	715	883	***	***	***	***
0.300	64	76	85	95	108	124	143	166	195	230	274	330	400	489	603	749	937	***	***
0.350	50	56	62	70	79	90	104	121	142	167	199	239	289	353	434	538	673	847	***
0.400	38	43	47	53	60	69	79	92	107	126	150	180	217	265	325	402	502	630	798
0.450	30	34	37	42	47	54	62	72	84	98	117	140	168	205	251	309	385	483	610
0.500	25	27	30	34	38	43	50	57	67	79	93	111	133	162	198	243	302	378	476
0.550	20	22	25	28	31	36	41	47	55	64	75	90	108	130	159	195	241	301	378
0.600	17	19	21	23	26	30	34	39	45	53	62	74	88	106	129	158	196	243	305
0.650	15	16	18	20	22	25	29	33	38	44	52	61	73	88	107	130	160	199	248
0.700	13	14	15	17	19	21	24	28	32	37	44	52	61	74	89	108	133	164	205
0.750	11	12	13	15	16	18	21	24	27	32	37	44	52	62	75	91	111	137	170
0.800	10	10	12	13	14	16	18	21	24	27	32	38	45	53	64	77	94	115	142
0.850	8	9	10	11	13	14	16	18	21	24	28	32	38	45	54	65	80	97	120
0.900	8	8	9	10	11	12	14	16	18	21	24	28	33	39	47	56	68	83	102
0.950	7	7	8	9	10	11	12	14	16	18	21	25	29	34	40	48	58	71	87
1.000	6	6	7	8	9	10	11	12	14	16	19	22	25	30	35	42	50	61	74
1.100	5	6	6	7	7	8	9	10	11	13	15	17	20	23	27	32	38	46	55
1.200	4	5	5	5	6	7	7	8	9	10	12	13	16	18	21	25	29	35	42
1.300	4	4	4	5	5	6	6	7	8	8	10	11	12	14	17	19	23	27	32
1.400	3	3	4	4	4	5	5	6	6	7	8	9	10	12	13	15	18	21	25
1.500	3	3	3	3	4	4	4	5	5	6	7	7	8	10	11	13	14	17	20
1.600	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10	12	14	16
1.700	2	2	3	3	3	3	3	4	4	4	5	5	6	7	7	8	10	11	13
1.800	2	2	2	2	3	3	3	3	3	4	4	5	5	6	6	7	8	9	11
1.900	2	2	2	2	2	2	2	3	3	3	4	4	4	5	5	6	7	8	9
2.000	2	2	2	2	2	2	2	2	3	3	3	3	4	4	5	5	6	6	7
2.200	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5
2.400	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4
2.600	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3
2.800	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.70

A\R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.300	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.350	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.400	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.450	776	996	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.500	604	773	996	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.550	479	610	784	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.600	384	489	626	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.650	312	396	506	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.700	256	324	412	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.750	212	267	339	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.800	177	222	281	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.850	149	186	234	825	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.900	126	157	196	679	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.950	107	133	164	562	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.000	91	113	140	467	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.100	67	83	102	327	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.200	51	62	76	233	854	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.300	39	47	57	168	593	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.400	30	36	43	123	418	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.500	23	28	33	92	298	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.600	19	22	26	69	213	797	***	***	***	***	***	***	***	***	***	***	***	***	***
1.700	15	18	21	52	157	560	***	***	***	***	***	***	***	***	***	***	***	***	***
1.800	12	14	17	40	114	398	***	***	***	***	***	***	***	***	***	***	***	***	***
1.900	10	12	13	31	87	285	***	***	***	***	***	***	***	***	***	***	***	***	***
2.000	8	10	11	25	66	208	777	***	***	***	***	***	***	***	***	***	***	***	***
2.200	6	7	8	16	39	113	391	***	***	***	***	***	***	***	***	***	***	***	***
2.400	4	5	5	11	24	63	206	776	***	***	***	***	***	***	***	***	***	***	***
2.600	3	4	4	7	15	38	113	393	***	***	***	***	***	***	***	***	***	***	***
2.800	3	3	3	5	10	24	63	207	786	***	***	***	***	***	***	***	***	***	***
3.000	2	2	3	4	7	15	38	114	399	***	***	***	***	***	***	***	***	***	***
3.200	2	2	2	3	5	10	24	65	211	806	***	***	***	***	***	***	***	***	***
3.400	2	2	2	2	4	7	15	39	116	409	***	***	***	***	***	***	***	***	***
3.600	1	1	1	2	3	5	10	24	66	216	832	***	***	***	***	***	***	***	***
3.800	1	1	1	2	2	4	7	16	40	119	422	***	***	***	***	***	***	***	***
4.000	1	1	1	1	2	3	5	10	25	68	223	863	***	***	***	***	***	***	***
4.500	1	1	1	1	1	2	3	5	9	20	54	170	638	***	***	***	***	***	***
5.000	1	1	1	1	1	1	2	2	4	7	16	43	132	476	***	***	***	***	***
5.500	1	1	1	1	1	1	1	2	2	3	6	14	35	103	360	***	***	***	***
6.000	1	1	1	1	1	1	1	1	1	2	3	6	12	28	81	274	***	***	***
6.500	1	1	1	1	1	1	1	1	1	1	2	3	5	10	23	64	211	813	***
7.000	1	1	1	1	1	1	1	1	1	1	1	2	3	4	8	19	52	163	410
7.500	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	7	16	42	128
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6	13	34
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	11
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.75

A\R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	772	774	787	789	803	822	845	873	907	947	993	***	***	***	***	***	***	***	***
0.070	568	569	573	580	590	604	621	642	667	696	731	772	820	875	940	***	***	***	***
0.080	435	435	439	444	452	462	475	491	510	533	560	591	628	670	720	778	847	927	***
0.090	344	344	347	351	357	365	376	388	403	421	442	467	496	530	569	615	669	733	808
0.100	278	279	281	284	290	296	304	315	327	341	358	378	402	429	461	498	542	593	654
0.120	193	194	195	198	201	206	212	219	227	237	249	263	279	298	320	346	376	412	454
0.140	142	143	144	145	148	151	156	161	167	174	183	193	205	219	235	254	277	303	334
0.160	109	109	110	111	113	116	119	123	128	134	140	148	157	168	180	195	212	232	256
0.180	86	86	87	88	90	92	94	97	101	106	111	117	124	133	143	154	167	183	202
0.200	70	70	71	71	73	74	76	79	82	86	90	95	101	108	116	125	136	148	164
0.250	45	45	45	46	47	48	49	51	53	55	58	61	65	69	74	80	87	95	105
0.300	31	31	32	32	33	33	34	35	37	38	40	42	45	48	52	56	60	66	73
0.350	23	23	23	24	24	25	25	26	27	28	30	31	33	35	38	41	44	49	53
0.400	18	18	18	18	19	19	19	20	21	22	23	24	26	27	29	31	34	37	41
0.450	14	14	14	15	15	15	16	16	17	17	18	19	20	22	23	25	27	29	32
0.500	12	12	12	12	12	12	13	13	14	14	15	16	16	18	19	20	22	24	26
0.550	10	10	10	10	10	10	11	11	11	12	12	13	14	15	16	17	18	20	22
0.600	8	8	8	8	9	9	9	9	10	10	10	11	12	12	13	14	15	17	18
0.650	7	7	7	7	7	7	8	8	8	9	9	9	10	11	11	12	13	14	15
0.700	6	6	6	6	6	7	7	7	7	8	8	8	9	9	10	10	11	12	13
0.750	5	5	5	5	6	6	6	6	6	7	7	7	8	8	9	9	10	11	12
0.800	5	5	5	5	5	5	5	5	6	6	6	6	7	7	8	8	9	9	10
0.850	4	4	4	4	4	5	5	5	5	5	5	6	6	6	7	7	8	8	9
0.900	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7	8
0.950	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	7	7
1.000	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	6	7
1.100	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5
1.200	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	4	4	4	5
1.300	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4
1.400	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
1.500	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
1.600	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
1.700	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1.800	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
1.900	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=75

A\R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	897	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	727	817	918	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	505	565	637	725	832	963	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	371	415	468	532	610	707	826	973	***	***	***	***	***	***	***	***	***	***	***
0.160	284	317	358	407	467	540	631	744	885	***	***	***	***	***	***	***	***	***	***
0.180	224	251	283	321	368	426	498	586	697	836	***	***	***	***	***	***	***	***	***
0.200	182	203	229	263	298	345	402	474	563	675	817	998	***	***	***	***	***	***	***
0.250	116	130	146	166	190	220	256	301	358	428	518	631	776	963	***	***	***	***	***
0.300	81	90	101	115	131	152	177	208	246	294	355	432	531	658	822	***	***	***	***
0.350	59	66	74	84	96	111	129	151	179	214	257	313	383	474	591	743	942	***	***
0.400	45	50	57	64	73	84	98	114	135	161	194	235	288	355	441	554	701	894	***
0.450	36	40	45	50	57	66	76	89	105	125	150	182	222	274	340	425	536	683	876
0.500	29	32	36	41	46	53	61	71	84	100	120	144	176	216	267	334	420	533	682
0.550	24	26	30	33	38	43	50	58	68	81	97	117	142	173	214	266	334	423	540
0.600	20	22	25	28	32	36	42	48	56	67	80	96	116	141	174	216	270	341	433
0.650	17	19	21	24	27	30	35	40	47	56	66	79	96	117	143	177	221	278	352
0.700	15	16	18	20	23	26	30	34	40	47	56	67	80	97	119	147	183	229	289
0.750	13	14	16	17	20	22	25	29	34	40	47	56	68	82	100	123	152	190	239
0.800	11	12	14	15	17	19	22	25	29	34	41	48	58	69	84	103	128	159	199
0.850	10	11	12	13	15	17	19	22	26	30	35	41	49	59	72	88	108	134	167
0.900	9	10	11	12	13	15	17	19	22	26	30	36	43	51	62	75	92	114	141
0.950	8	9	10	11	12	13	15	17	20	23	27	31	37	44	53	64	79	97	120
1.000	7	8	9	9	11	12	13	15	17	20	23	27	32	38	46	56	68	83	102
1.100	6	6	7	8	9	10	11	12	14	16	18	21	25	29	35	42	51	62	76
1.200	5	5	6	6	7	8	9	10	11	13	15	17	20	23	27	32	39	47	57
1.300	4	5	5	5	6	7	7	8	9	10	12	14	16	18	21	25	30	36	43
1.400	4	4	4	4	5	6	6	7	8	9	10	11	13	15	17	20	24	28	33
1.500	3	3	4	4	4	5	5	6	6	7	8	9	10	12	14	16	19	22	26
1.600	3	3	3	4	4	4	4	5	5	6	7	8	9	10	11	13	15	18	21
1.700	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9	11	12	14	17
1.800	2	2	3	3	3	3	3	4	4	4	5	5	6	7	8	9	10	12	14
1.900	2	2	2	2	3	3	3	3	4	4	4	5	5	6	7	7	8	10	11
2.000	2	2	2	2	2	3	3	3	3	3	4	4	5	5	6	6	7	8	9
2.200	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	5	5	6	7
2.400	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5
2.600	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4
2.800	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
 (R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=75

A\R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.300	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.350	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.400	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.450	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.500	879	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.550	694	900	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.600	556	714	935	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.650	450	579	752	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.700	368	472	610	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.750	303	384	500	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.800	252	321	412	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.850	211	264	342	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.900	177	224	286	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.950	150	189	240	885	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.000	128	160	202	737	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.100	93	116	146	507	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.200	70	86	107	357	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.300	53	65	80	255	985	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.400	40	49	60	185	685	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.500	31	34	46	136	482	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.600	25	30	36	101	344	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.700	20	23	24	76	248	975	***	***	***	***	***	***	***	***	***	***	***	***	***
1.800	16	19	22	58	181	683	***	***	***	***	***	***	***	***	***	***	***	***	***
1.900	13	15	18	44	134	484	***	***	***	***	***	***	***	***	***	***	***	***	***
2.000	11	12	14	35	100	347	***	***	***	***	***	***	***	***	***	***	***	***	***
2.200	7	8	10	22	58	184	704	***	***	***	***	***	***	***	***	***	***	***	***
2.400	5	6	7	14	35	102	359	***	***	***	***	***	***	***	***	***	***	***	***
2.600	4	5	5	10	22	59	191	742	***	***	***	***	***	***	***	***	***	***	***
2.800	3	3	4	7	14	35	106	378	***	***	***	***	***	***	***	***	***	***	***
3.000	3	3	3	5	10	22	61	201	793	***	***	***	***	***	***	***	***	***	***
3.200	2	2	2	4	7	15	37	111	403	***	***	***	***	***	***	***	***	***	***
3.400	2	2	2	3	5	10	23	64	214	855	***	***	***	***	***	***	***	***	***
3.600	2	2	2	2	7	15	38	118	434	***	***	***	***	***	***	***	***	***	***
3.800	1	1	1	2	3	5	10	24	68	229	930	***	***	***	***	***	***	***	***
4.000	1	1	1	2	4	7	16	40	126	470	***	***	***	***	***	***	***	***	***
4.500	1	1	1	1	2	3	6	13	34	102	369	***	***	***	***	***	***	***	***
5.000	1	1	1	1	1	1	2	3	5	11	28	87	292	***	***	***	***	***	***
5.500	1	1	1	1	1	1	1	2	3	5	10	24	68	233	957	***	***	***	***
6.000	1	1	1	1	1	1	1	1	2	3	4	9	20	56	188	749	***	***	***
6.500	1	1	1	1	1	1	1	1	1	2	2	4	8	17	47	152	589	***	***
7.000	1	1	1	1	1	1	1	1	1	1	2	2	4	7	15	39	124	467	***
7.500	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6	13	33	102	373
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	11	28	84
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	10	24
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	9	2
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.80

A\R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	897	898	905	916	933	954	981	***	***	***	***	***	***	***	***	***	***	***	***
0.070	659	660	665	673	685	701	721	745	775	809	851	899	956	***	***	***	***	***	***
0.080	505	505	509	516	525	537	552	571	593	620	651	689	732	783	844	915	998	***	***
0.090	399	400	403	408	415	424	436	451	469	490	515	544	579	617	667	723	789	868	962
0.100	323	324	326	330	336	344	354	365	380	397	417	441	469	502	540	585	639	703	779
0.120	225	225	227	229	234	239	246	254	264	276	290	306	326	348	375	407	444	488	541
0.140	165	165	167	169	172	176	181	187	194	203	213	225	239	256	276	299	326	359	397
0.160	127	127	128	129	132	135	138	143	149	155	163	172	183	196	211	229	250	274	304
0.180	100	100	101	102	104	106	109	113	118	123	129	136	145	155	167	181	197	217	240
0.200	81	81	82	83	84	86	89	92	95	100	105	111	117	124	135	147	160	176	195
0.250	52	52	53	53	54	55	57	59	61	64	67	71	75	81	87	94	102	112	124
0.300	36	36	37	37	38	39	40	41	43	45	47	49	52	54	60	65	71	78	86
0.350	27	27	27	27	28	29	29	30	31	33	34	36	39	41	44	48	52	57	63
0.400	21	21	21	21	21	22	23	23	24	25	26	28	30	32	34	37	40	44	48
0.450	16	16	17	17	17	17	18	19	19	20	21	22	24	25	27	29	32	35	38
0.500	13	13	14	14	14	14	15	15	16	16	17	18	19	20	22	24	26	28	31
0.550	11	11	11	11	12	12	12	13	13	14	14	15	16	17	18	20	21	23	26
0.600	9	9	10	10	10	10	10	11	11	11	12	13	13	14	15	16	18	20	21
0.650	8	8	8	8	8	9	9	9	9	10	10	11	11	12	13	14	15	17	18
0.700	7	7	7	7	7	7	8	8	8	9	9	9	10	11	11	12	13	14	16
0.750	6	6	6	6	6	6	7	7	7	8	8	8	9	9	10	11	12	13	14
0.800	6	6	6	6	6	6	6	6	6	7	7	7	8	8	9	9	10	11	12
0.850	5	5	5	5	5	5	5	5	5	6	6	6	7	7	8	8	9	10	11
0.900	4	4	4	4	4	4	4	4	4	5	5	5	6	6	7	7	8	9	9
0.950	4	4	4	4	4	4	4	4	4	5	5	5	6	6	6	7	7	8	9
1.000	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	6	6	7	8
1.100	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	6
1.200	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	5	5
1.300	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4
1.400	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
1.500	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1.600	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1.700	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.80

A\R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	870	981	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	604	681	774	888	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	444	500	568	652	755	883	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	340	383	435	499	577	675	796	949	***	***	***	***	***	***	***	***	***	***	***
0.180	268	302	343	394	456	532	628	748	900	***	***	***	***	***	***	***	***	***	***
0.200	217	245	278	318	368	430	508	604	726	881	***	***	***	***	***	***	***	***	***
0.250	139	156	177	203	235	274	323	384	461	559	683	843	***	***	***	***	***	***	***
0.300	96	108	123	140	162	189	222	264	317	383	468	577	718	901	***	***	***	***	***
0.350	71	79	90	103	118	138	167	192	230	278	339	417	517	648	819	***	***	***	***
0.400	54	61	68	78	90	105	123	145	174	209	255	313	387	494	611	777	997	***	***
0.450	43	48	54	61	71	82	96	113	135	163	197	242	299	373	469	595	761	983	***
0.500	34	38	43	49	57	66	77	90	108	129	156	191	236	293	368	465	594	765	993
0.550	28	32	36	41	46	54	63	74	87	105	126	154	186	235	294	371	472	606	784
0.600	24	26	30	34	39	45	52	61	72	86	104	126	154	191	238	300	380	486	628
0.650	20	22	25	29	33	37	44	51	60	72	86	104	128	157	195	245	310	395	508
0.700	17	19	22	24	28	32	37	43	51	60	72	87	106	131	162	203	255	324	416
0.750	15	17	19	21	24	27	32	37	43	51	61	74	90	110	136	169	212	268	343
0.800	13	15	16	18	21	24	27	32	37	44	52	63	76	93	114	142	177	224	285
0.850	12	13	14	16	18	21	24	28	32	38	45	54	65	79	97	120	149	188	238
0.900	10	11	13	14	16	18	21	24	28	33	39	47	56	68	83	102	127	159	200
0.950	9	10	11	13	14	16	18	21	25	29	34	40	48	58	71	87	108	135	169
1.000	8	9	10	11	13	14	16	19	22	25	30	35	42	51	61	75	93	115	144
1.100	7	8	8	9	10	12	13	15	17	20	23	27	32	39	46	56	69	85	105
1.200	6	6	7	8	8	9	11	12	14	16	18	21	25	30	36	43	52	64	79
1.300	5	5	6	6	7	8	9	10	11	13	15	17	20	24	28	33	40	49	59
1.400	4	5	5	5	6	7	7	8	9	11	12	14	16	19	22	26	31	38	46
1.500	4	4	4	5	5	6	6	7	8	9	10	11	13	15	18	21	25	29	35
1.600	3	4	4	4	4	5	5	6	7	7	8	9	11	12	14	17	20	23	28
1.700	3	3	3	4	4	4	5	5	6	6	7	8	9	10	12	14	16	19	22
1.800	3	3	3	3	3	4	4	4	5	5	6	7	8	9	10	11	13	15	18
1.900	2	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9	11	12	15
2.000	2	2	2	3	3	3	3	3	4	4	4	5	6	6	7	8	9	10	12
2.200	2	2	2	2	2	2	3	3	3	3	3	4	4	5	5	6	6	7	8
2.400	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4	4	5	5	6
2.600	1	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4
2.800	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	4
3.000	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
 (R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

C=0.80

A\R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.300	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.350	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.400	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.450	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.500	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.550	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.600	817	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.650	659	862	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.700	537	700	919	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.750	441	573	750	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.800	365	472	616	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.850	304	392	509	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.900	255	327	423	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.950	215	274	354	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.000	182	231	297	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.100	132	167	212	799	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.200	98	122	154	557	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.300	73	91	114	394	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.400	56	69	85	282	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.500	43	52	64	205	794	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.600	33	41	49	151	559	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.700	26	32	38	112	399	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.800	21	25	30	85	288	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.900	17	20	24	64	210	834	***	***	***	***	***	***	***	***	***	***	***	***	***
2.000	14	16	19	50	155	590	***	***	***	***	***	***	***	***	***	***	***	***	***
2.200	10	11	13	30	87	304	***	***	***	***	***	***	***	***	***	***	***	***	***
2.400	7	8	9	19	51	164	639	***	***	***	***	***	***	***	***	***	***	***	***
2.600	5	6	6	13	31	92	330	***	***	***	***	***	***	***	***	***	***	***	***
2.800	4	4	5	9	20	54	177	706	***	***	***	***	***	***	***	***	***	***	***
3.000	3	3	4	6	13	33	99	363	***	***	***	***	***	***	***	***	***	***	***
3.200	2	3	3	5	9	21	58	194	791	***	***	***	***	***	***	***	***	***	***
3.400	2	2	2	4	7	14	35	108	404	***	***	***	***	***	***	***	***	***	***
3.600	2	2	2	3	5	10	22	63	215	845	***	***	***	***	***	***	***	***	***
3.800	2	2	2	2	4	7	15	38	119	455	***	***	***	***	***	***	***	***	***
4.000	1	1	1	2	3	5	10	24	69	241	***	***	***	***	***	***	***	***	***
4.500	1	1	1	1	2	3	5	9	21	58	199	827	***	***	***	***	***	***	***
5.000	1	1	1	1	1	2	2	4	8	18	50	166	675	***	***	***	***	***	***
5.500	1	1	1	1	1	1	2	2	4	7	16	43	140	555	***	***	***	***	***
6.000	1	1	1	1	1	1	1	2	2	3	6	14	37	118	459	***	***	***	***
6.500	1	1	1	1	1	1	1	1	1	2	3	6	12	32	100	381	***	***	***
7.000	1	1	1	1	1	1	1	1	1	1	2	3	5	11	26	86	319	***	***
7.500	1	1	1	1	1	1	1	1	1	1	1	2	3	5	10	25	74	267	***
8.000	1	1	1	1	1	1	1	1	1	1	1	1	2	3	4	9	22	63	225
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	8	19	55
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	7	17
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	7
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.85

A\R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	777	778	784	794	808	827	850	879	914	956	***	***	***	***	***	***	***	***	***
0.080	595	596	600	608	619	633	651	673	700	732	770	815	869	932	***	***	***	***	***
0.090	470	471	474	480	489	500	515	532	553	579	609	644	686	736	795	865	949	***	***
0.100	381	382	384	389	396	405	417	431	448	469	493	522	556	596	644	701	768	849	947
0.120	265	265	267	270	275	282	290	300	311	326	343	363	386	414	447	487	534	590	658
0.140	195	195	196	199	202	207	213	220	229	239	252	267	284	304	329	358	392	433	483
0.160	149	149	150	152	155	159	163	169	175	183	193	204	217	233	252	274	300	332	370
0.180	118	118	119	120	123	125	129	133	139	145	153	161	172	184	199	216	237	262	292
0.200	96	96	96	98	99	102	105	108	112	118	124	131	139	149	161	175	192	212	236
0.250	61	61	62	63	64	65	67	69	72	75	79	84	89	96	103	112	123	136	151
0.300	43	43	43	44	44	45	47	48	50	53	55	58	62	67	72	78	85	94	105
0.350	32	32	32	32	33	34	34	36	37	39	41	43	46	49	53	57	63	69	77
0.400	24	24	24	25	25	26	27	27	28	30	31	33	35	38	40	44	48	53	59
0.450	19	19	19	20	20	20	21	22	23	24	25	26	28	30	32	35	38	42	46
0.500	16	16	16	16	16	17	17	18	18	19	20	21	23	24	26	28	31	34	37
0.550	13	13	13	13	14	14	14	15	15	16	17	18	19	20	22	23	25	28	31
0.600	11	11	11	11	11	12	12	12	13	13	14	15	16	17	18	20	21	23	26
0.650	10	10	10	10	10	10	10	11	11	12	12	13	14	14	16	17	18	20	22
0.700	8	8	8	8	8	9	9	9	10	10	11	11	12	13	13	14	16	17	19
0.750	7	7	7	7	8	8	8	8	9	9	9	10	10	11	12	13	14	15	16
0.800	6	6	6	7	7	7	7	7	8	8	8	9	9	10	10	11	12	13	14
0.850	6	6	6	6	6	6	6	6	7	7	7	8	8	9	9	10	11	12	13
0.900	5	5	5	5	5	5	5	6	6	6	7	7	7	8	8	9	10	10	11
0.950	5	5	5	5	5	5	5	5	5	6	6	6	6	7	7	8	9	9	10
1.000	4	4	4	4	4	4	5	5	5	5	5	5	6	6	6	7	8	8	9
1.100		4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	7	8
1.200	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	6	6
1.300	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5
1.400	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4
1.500	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4
1.600	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4
1.700	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
1.800	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3
1.900	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
2.000	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
2.200	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.05

A\R	1.00	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	740	841	964	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	544	617	708	820	959	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	416	472	542	627	733	866	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	328	373	427	495	579	683	815	982	***	***	***	***	***	***	***	***	***	***	***
0.200	266	302	346	400	468	552	658	793	964	***	***	***	***	***	***	***	***	***	***
0.250	170	193	221	255	298	351	418	503	611	749	928	***	***	***	***	***	***	***	***
0.300	118	133	153	176	206	242	288	346	419	514	635	792	998	***	***	***	***	***	***
0.350	86	98	112	129	150	176	209	251	304	372	459	571	718	912	***	***	***	***	***
0.400	66	74	85	98	114	134	159	190	229	280	344	428	537	680	869	***	***	***	***
0.450	52	59	67	77	89	105	124	148	178	217	266	330	413	522	666	857	***	***	***
0.500	42	47	54	62	72	84	99	118	142	172	211	261	326	410	521	669	866	***	***
0.550	35	39	44	51	58	68	80	96	115	139	170	210	261	328	415	531	686	893	***
0.600	29	32	37	42	49	58	67	79	95	114	139	171	212	264	336	428	551	715	936
0.650	25	28	31	36	41	48	56	66	79	95	115	141	175	218	275	349	448	579	755
0.700	21	24	27	30	35	40	47	56	66	80	97	118	146	181	227	288	367	473	615
0.750	18	20	23	26	30	35	40	48	56	68	82	99	122	152	189	239	304	390	506
0.800	16	18	20	23	26	30	35	41	48	58	70	84	103	128	159	200	254	324	419
0.850	14	16	18	20	23	26	30	35	42	50	60	72	88	109	135	169	213	271	349
0.900	13	14	16	18	20	23	27	31	36	43	52	62	76	93	115	143	180	228	292
0.950	11	12	14	16	18	20	23	27	32	36	45	54	65	80	98	122	153	193	246
1.00	10	11	12	14	16	18	21	24	28	33	39	47	57	69	85	105	131	164	209
1.100	8	9	10	11	13	14	16	19	22	26	30	36	43	52	63	78	96	120	152
1.200	7	8	9	10	12	13	15	18	20	24	28	33	40	48	59	72	90	112	140
1.300	6	6	7	8	9	10	11	12	14	16	19	22	26	31	38	45	55	68	84
1.400	5	5	6	7	7	8	9	10	12	13	15	18	21	25	30	35	43	52	64
1.500	4	5	5	6	6	7	8	9	10	11	13	15	17	20	23	28	33	40	49
1.600	4	4	4	5	5	6	7	7	8	9	11	12	14	16	19	22	27	32	38
1.700	3	4	4	4	5	5	6	6	7	8	9	10	12	13	15	18	21	25	30
1.800	3	3	3	4	4	4	5	5	6	7	7	8	10	11	13	15	17	20	24
1.900	3	3	3	3	4	4	4	5	5	6	6	7	8	9	11	12	14	17	20
2.000	2	3	3	3	3	3	4	4	5	5	6	6	7	8	9	10	12	14	16
2.200	2	2	2	2	3	3	3	3	4	4	4	5	5	6	6	7	8	9	11
2.400	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6	7	8
2.600	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	5	5	6
2.800	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4	4
3.000	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3
3.200	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
3.400	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.85

A\R	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.045	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.050	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.060	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.070	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.080	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.090	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.100	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.120	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.140	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.160	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.180	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.200	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.250	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.300	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.350	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.400	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.450	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.500	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.550	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.600	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.650	994	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.700	807	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.750	661	870	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.800	545	715	946	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.850	452	591	779	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.900	377	491	645	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
0.950	317	410	537	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1.000	267	345	449	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1.100	192	241	318	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1.200	141	174	229	894	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1.300	105	132	167	626	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1.400	79	99	124	444	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1.500	60	75	93	319	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1.600	47	57	71	232	938	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1.700	37	44	55	171	661	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1.800	29	35	42	128	471	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1.900	23	28	33	96	340	000	000	000	000	000	000	000	000	000	000	000	000	000	000
2.000	19	22	27	73	248	000	000	000	000	000	000	000	000	000	000	000	000	000	000
2.200	13	15	17	44	137	520	000	000	000	000	000	000	000	000	000	000	000	000	000
2.400	9	10	12	28	78	273	000	000	000	000	000	000	000	000	000	000	000	000	000
2.600	6	7	8	18	47	150	589	000	000	000	000	000	000	000	000	000	000	000	000
2.800	5	5	6	12	29	86	308	000	000	000	000	000	000	000	000	000	000	000	000
3.000	4	4	5	9	19	51	168	678	000	000	000	000	000	000	000	000	000	000	000
3.200	3	3	4	6	13	32	95	352	000	000	000	000	000	000	000	000	000	000	000
3.400	2	3	3	5	9	20	56	190	793	000	000	000	000	000	000	000	000	000	000
3.600	2	2	2	4	7	14	35	107	408	000	000	000	000	000	000	000	000	000	000
3.800	2	2	2	3	5	10	22	63	219	937	000	000	000	000	000	000	000	000	000
4.000	2	2	2	2	4	7	15	38	122	478	000	000	000	000	000	000	000	000	000
4.500	1	1	1	2	3	6	13	34	104	407	000	000	000	000	000	000	000	000	000
5.000	1	1	1	1	2	3	6	12	30	92	350	000	000	000	000	000	000	000	000
5.500	1	1	1	1	1	1	7	3	5	11	27	81	302	000	000	000	000	000	000
6.000	1	1	1	1	1	1	1	2	3	5	10	24	71	262	000	000	000	000	000
6.500	1	1	1	1	1	1	1	1	2	3	4	9	22	63	229	000	000	000	000
7.000	1	1	1	1	1	1	1	1	1	2	2	4	8	19	56	200	875	000	000
7.500	1	1	1	1	1	1	1	1	1	1	2	2	4	8	18	50	176	756	000
8.000	1	1	1	1	1	1	1	1	1	1	1	2	2	4	7	16	45	155	656
8.500	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	6	15	41	137
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6	13	37
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	6	12
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.90

A\R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	943	945	952	964	981	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	722	723	729	738	751	769	791	818	851	891	939	996	***	***	***	***	***	***	***
0.090	571	572	576	583	594	608	625	647	673	704	742	787	841	904	981	***	***	***	***
0.100	462	463	467	473	481	492	506	524	545	571	601	638	681	733	795	869	958	***	***
0.120	321	322	324	328	334	342	352	364	379	396	418	443	473	509	552	603	665	741	833
0.140	236	237	238	241	246	251	259	268	278	291	307	326	348	374	405	443	489	544	611
0.160	181	181	183	185	188	193	198	205	213	223	235	249	266	286	310	339	374	416	468
0.180	143	143	144	146	149	152	157	162	169	176	186	197	210	226	245	268	296	329	370
0.200	116	116	117	119	121	123	127	131	137	143	151	160	171	183	199	217	239	266	299
0.250	74	75	75	76	77	79	81	84	88	92	97	102	109	117	127	139	153	170	191
0.300	52	52	52	53	54	55	57	59	61	64	67	71	76	82	88	97	106	118	133
0.350	38	38	39	39	40	41	42	43	45	47	49	52	56	60	65	71	78	87	97
0.400	29	29	30	30	31	31	32	33	35	36	38	40	43	46	50	54	60	66	74
0.450	23	23	24	24	24	25	25	26	27	29	30	32	34	36	39	43	47	52	58
0.500	19	19	19	19	20	20	21	21	22	23	24	26	28	30	32	35	38	42	47
0.550	16	16	16	16	16	17	17	18	18	19	20	21	23	24	26	29	32	35	39
0.600	13	13	13	14	14	14	15	15	16	16	17	18	19	21	22	24	26	29	33
0.650	11	11	12	12	12	12	12	13	13	14	15	15	16	18	19	21	23	25	28
0.700	10	10	10	10	10	11	11	11	12	12	13	13	14	15	16	18	19	21	24
0.750	9	9	9	9	9	9	9	10	10	11	11	12	12	13	14	16	17	19	21
0.800	8	8	8	8	8	8	8	9	9	9	10	10	11	12	13	14	15	16	18
0.850	7	7	7	7	7	7	7	8	8	8	9	9	10	10	11	12	13	14	16
0.900	6	6	6	6	6	6	6	7	7	7	8	8	9	9	10	11	12	13	14
0.950	6	6	6	6	6	6	6	6	7	7	7	7	8	8	9	10	11	12	13
1.000	5	5	5	5	5	5	5	6	6	6	6	7	7	8	8	9	10	10	11
1.100	4	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7	8	9	9
1.200	4	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	7	7	8
1.300	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	6	6	7
1.400	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5	6
1.500	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5
1.600	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4
1.700	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4
1.800	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
1.900	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
2.000	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3
2.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
2.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
2.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.90

A \ R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	945	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	694	196	922	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	531	609	705	826	976	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	419	481	557	651	770	920	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	339	389	450	527	622	743	897	***	***	***	***	***	***	***	***	***	***	***	***
0.250	217	248	287	335	396	472	569	693	852	***	***	***	***	***	***	***	***	***	***
0.300	150	172	198	232	273	325	391	476	584	724	906	***	***	***	***	***	***	***	***
0.350	110	126	145	169	199	237	284	345	423	523	654	825	***	***	***	***	***	***	***
0.400	84	96	110	128	151	179	215	260	318	393	490	617	784	***	***	***	***	***	***
0.450	66	75	87	101	118	140	167	202	247	304	378	475	602	771	997	***	***	***	***
0.500	53	61	70	81	95	112	134	161	196	241	299	374	473	604	779	***	***	***	***
0.550	44	50	57	66	77	91	109	131	159	194	240	300	379	482	619	802	***	***	***
0.600	37	42	48	55	64	75	90	108	130	159	196	244	307	390	499	645	841	***	***
0.650	31	35	40	46	54	63	75	90	108	132	162	201	252	319	407	524	682	894	***
0.700	27	30	34	39	46	54	63	76	91	111	136	168	210	264	336	431	558	729	961
0.750	23	26	30	34	39	46	54	64	77	94	114	141	175	220	279	357	460	599	787
0.800	20	23	26	29	34	40	47	55	66	80	97	119	148	185	234	298	383	496	649
0.850	18	20	23	26	30	35	40	48	57	69	83	102	126	157	197	250	320	413	539
0.900	16	18	20	23	26	30	35	42	49	59	72	87	108	134	167	211	269	347	450
0.950	14	16	18	20	23	27	31	36	43	52	62	75	93	114	143	180	228	292	378
1.000	13	14	16	18	20	24	27	32	38	45	54	65	80	99	122	153	194	247	318
1.100	10	11	13	14	16	19	22	25	30	35	42	50	61	74	91	113	142	180	230
1.200	9	9	11	12	13	15	17	20	23	28	33	39	47	57	69	85	106	133	168
1.300	7	8	9	10	11	12	14	16	19	22	26	31	36	44	53	65	80	100	125
1.400	6	7	7	8	9	10	12	13	15	18	21	24	29	35	42	50	62	76	94
1.500	5	6	6	7	8	9	10	11	13	15	17	20	23	27	33	39	48	59	72
1.600	5	5	6	6	7	7	8	9	11	12	14	16	19	22	26	31	38	46	56
1.700	4	4	5	5	6	6	7	8	9	10	12	13	15	18	21	25	30	36	44
1.800	4	4	4	5	5	6	6	7	8	9	10	11	13	15	17	20	24	29	35
1.900	3	4	4	4	4	5	5	6	7	7	8	9	11	12	14	17	20	25	28
2.000	3	3	3	4	4	4	5	5	6	6	7	8	9	10	12	14	16	19	22
2.200	2	3	3	3	3	3	4	4	4	5	5	6	7	8	9	10	11	13	15
2.400	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6	6	7	8	11
2.600	2	2	2	2	2	2	3	3	3	3	3	4	4	4	5	5	5	7	8
2.800	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6
3.000	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4
3.200	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4
3.400	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
3.600	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
3.800	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE  $\gamma$  E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=90

A\R	3.80	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.300	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.350	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.400	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.450	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.500	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.550	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.600	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.650	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.700	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.750	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.800	857	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.850	708	940	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.900	589	778	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.950	492	648	860	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.000	413	542	716	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.100	296	384	503	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.200	215	277	359	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.300	158	202	260	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.400	118	150	191	738	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.500	90	113	142	525	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.600	69	86	107	379	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.700	53	66	82	276	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.800	42	51	63	204	817	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.900	33	40	49	152	583	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2.000	27	32	39	115	421	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2.200	18	21	25	68	226	941	***	***	***	***	***	***	***	***	***	***	***	***	***
2.400	12	14	17	42	127	483	***	***	***	***	***	***	***	***	***	***	***	***	***
2.600	9	10	12	27	75	250	***	***	***	***	***	***	***	***	***	***	***	***	***
2.800	6	7	8	18	45	144	567	***	***	***	***	***	***	***	***	***	***	***	***
3.000	5	6	6	12	29	84	301	***	***	***	***	***	***	***	***	***	***	***	***
3.200	4	4	5	9	19	51	166	678	***	***	***	***	***	***	***	***	***	***	***
3.400	3	3	4	6	13	32	96	356	***	***	***	***	***	***	***	***	***	***	***
3.600	3	3	3	5	9	21	57	195	822	***	***	***	***	***	***	***	***	***	***
3.800	2	2	3	4	7	14	36	111	427	***	***	***	***	***	***	***	***	***	***
4.000	2	2	2	3	5	10	23	66	231	***	***	***	***	***	***	***	***	***	***
4.500	1	1	2	2	3	5	9	21	59	205	889	***	***	***	***	***	***	***	***
5.000	1	1	1	1	2	3	4	8	19	53	165	787	***	***	***	***	***	***	***
5.500	1	1	1	1	1	2	3	4	8	18	48	165	701	***	***	***	***	***	***
6.000	1	1	1	1	1	1	2	2	4	7	16	44	149	628	***	***	***	***	***
6.500	1	1	1	1	1	1	1	2	2	4	7	15	41	136	566	***	***	***	***
7.000	1	1	1	1	1	1	1	1	2	2	4	6	14	37	124	509	***	***	***
7.500	1	1	1	1	1	1	1	1	1	2	2	3	6	13	35	113	460	***	***
8.000	1	1	1	1	1	1	1	1	1	1	1	2	3	6	12	32	104	417	***
8.500	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	11	30	95	379
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	11	28	48
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	10	29
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	10



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.95

A\R	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	940	942	949	961	979	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	743	745	750	760	773	792	815	844	879	922	973	***	***	***	***	***	***	***	***
0.100	602	603	608	615	627	641	660	683	712	747	789	839	900	974	***	***	***	***	***
0.120	418	419	422	428	435	445	459	475	495	519	548	583	625	676	730	813	905	***	***
0.140	307	308	310	314	320	327	337	349	363	381	403	428	459	497	542	597	665	747	849
0.160	235	236	238	241	245	251	258	267	278	292	308	328	352	380	415	457	509	572	650
0.180	186	187	188	190	194	198	204	211	220	231	244	259	278	301	328	361	402	452	513
0.200	151	151	152	154	157	161	165	171	178	187	197	210	225	244	266	293	325	366	415
0.250	97	97	98	99	101	103	106	110	114	120	127	135	144	156	170	187	208	234	265
0.300	67	67	68	69	70	72	74	76	80	83	88	94	100	108	117	130	144	162	184
0.350	50	50	50	51	52	53	54	56	59	61	65	69	74	80	87	95	106	119	135
0.400	38	38	38	39	40	41	42	43	45	47	50	53	57	61	66	73	81	91	103
0.450	30	30	30	31	31	32	33	34	36	37	39	42	45	48	52	58	64	71	81
0.500	25	25	25	25	26	26	27	28	29	30	32	34	36	39	43	47	52	58	65
0.550	20	20	21	21	21	22	22	23	24	25	26	28	30	32	35	39	43	48	54
0.600	17	17	17	18	18	18	19	19	20	21	22	24	25	27	30	32	36	40	45
0.650	15	15	15	15	15	16	16	17	17	18	19	20	22	23	25	28	30	34	38
0.700	13	13	13	13	13	14	14	14	15	16	16	17	19	20	22	24	26	29	33
0.750	11	11	11	11	12	12	12	13	13	14	14	15	16	17	19	21	23	25	28
0.800	10	10	10	10	10	11	11	11	12	12	13	13	14	15	17	18	20	22	25
0.850	9	9	9	9	9	9	10	10	10	11	11	12	13	14	15	16	18	20	22
0.900	8	8	8	8	8	8	9	9	9	10	10	11	11	12	13	14	16	17	19
0.950	7	7	7	7	7	8	8	8	8	9	9	10	10	11	12	13	14	15	17
1.000	7	7	7	7	7	7	7	7	8	8	8	9	9	10	11	12	13	14	15
1.100	5	5	6	6	6	6	6	6	6	7	7	7	8	8	9	10	10	11	13
1.200	5	5	5	5	5	5	5	5	5	6	6	6	7	7	7	8	9	10	11
1.300	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7	8	9
1.400	4	4	4	4	4	4	4	4	4	4	4	5	5	5	6	6	6	7	8
1.500	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	6	6	7
1.600	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5	6	6
1.700	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5
1.800	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4
1.900	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4
2.000	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4
2.200	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
2.400	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
2.600	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
2.800	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
3.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
3.200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
3.400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.600	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3.800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=.95

A \ R	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	975	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	746	866	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	589	684	802	950	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	477	553	648	768	920	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	304	353	413	489	585	707	863	***	***	***	***	***	***	***	***	***	***	***	***
0.300	210	244	285	337	403	486	593	730	909	***	***	***	***	***	***	***	***	***	***
0.350	154	178	208	246	293	353	430	529	657	824	***	***	***	***	***	***	***	***	***
0.400	117	136	158	186	222	267	325	398	494	618	782	998	***	***	***	***	***	***	***
0.450	92	106	124	146	173	208	252	309	382	478	602	767	987	***	***	***	***	***	***
0.500	74	86	100	117	139	166	201	246	303	377	475	603	774	***	***	***	***	***	***
0.550	61	70	81	95	113	135	163	199	244	304	381	483	617	797	***	***	***	***	***
0.600	51	58	68	79	94	112	136	163	200	248	310	392	499	643	835	***	***	***	***
0.650	43	49	57	67	79	93	112	136	166	205	256	322	409	525	679	888	***	***	***
0.700	37	42	49	57	67	79	95	114	139	172	213	267	339	433	558	727	955	***	***
0.750	32	36	42	49	57	67	81	97	118	145	179	224	283	360	462	606	735	***	***
0.800	28	32	36	42	49	58	69	83	101	123	152	189	238	302	386	499	651	856	***
0.850	24	28	32	37	43	50	60	72	87	105	130	161	201	254	325	418	542	711	941
0.900	22	25	28	32	38	44	52	62	75	91	111	138	172	216	274	352	455	594	782
0.950	19	22	25	29	33	39	46	54	65	79	96	118	147	184	233	298	384	499	654
1.000	17	19	22	25	29	34	40	48	57	69	83	102	127	158	199	253	325	421	549
1.100	14	16	18	20	23	27	32	37	44	53	64	78	95	118	147	186	236	303	393
1.200	12	13	15	17	19	22	25	30	35	41	49	60	73	89	111	139	175	222	286
1.300	10	11	12	14	16	18	20	24	28	33	39	47	57	69	85	105	131	166	211
1.400	8	9	10	11	13	15	17	19	23	26	31	37	44	54	65	81	100	125	158
1.500	7	8	9	10	11	12	14	16	19	22	25	30	35	42	51	63	77	95	119
1.600	6	7	7	8	9	10	12	13	15	18	21	24	29	34	41	49	60	74	91
1.700	5	6	7	7	8	9	10	11	13	15	17	20	23	27	33	39	47	58	71
1.800	5	5	6	6	7	8	9	10	11	12	14	16	19	22	26	31	38	46	56
1.900	4	5	5	6	6	7	7	8	9	11	12	14	16	18	22	26	30	37	44
2.000	4	4	4	5	5	6	6	7	8	9	10	12	13	15	18	21	25	29	35
2.200	3	3	4	4	4	5	5	6	6	7	8	9	10	11	13	15	17	20	23
2.400	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10	12	14	16
2.600	2	2	3	3	3	3	3	4	4	4	5	5	6	6	7	8	9	10	11
2.800	2	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6	7	7	8
3.000	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6	6
3.200	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	5	5
3.400	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4
3.600	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3
3.800	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3
4.000	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
4.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
5.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



NUMBER OF WEAPONS OF LETHAL RADIUS A REQUIRED TO GIVE AN EXPECTED COVERAGE OF E FOR A CIRCULAR UNIFORM TARGET OF RADIUS R  
(R AND A EXPRESSED IN SIGMAS AND \*\*\* INDICATES MORE THAN 999 WEAPONS)

E=0.95

A/R	3.00	3.90	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00
0.045	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.050	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.060	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.070	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.080	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.090	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.100	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.120	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.140	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.160	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.180	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.200	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.250	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.300	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.350	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.400	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.450	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.500	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.550	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.600	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.650	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.700	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.750	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.800	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.850	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.900	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
0.950	866	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.000	724	964	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.100	514	677	901	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.200	370	484	638	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.300	270	350	458	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.400	200	257	334	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.500	151	192	246	982	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.600	114	144	184	701	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.700	88	110	139	506	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.800	68	85	106	370	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
1.900	54	66	82	273	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2.000	43	52	64	204	813	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2.200	28	33	40	118	428	***	***	***	***	***	***	***	***	***	***	***	***	***	***
2.400	19	22	26	71	235	974	***	***	***	***	***	***	***	***	***	***	***	***	***
2.600	13	15	18	44	134	509	***	***	***	***	***	***	***	***	***	***	***	***	***
2.800	10	11	13	29	80	277	***	***	***	***	***	***	***	***	***	***	***	***	***
3.000	7	8	9	19	50	157	618	***	***	***	***	***	***	***	***	***	***	***	***
3.200	6	6	7	14	32	93	333	***	***	***	***	***	***	***	***	***	***	***	***
3.400	4	5	5	10	21	57	186	765	***	***	***	***	***	***	***	***	***	***	***
3.600	4	4	4	7	15	36	109	406	***	***	***	***	***	***	***	***	***	***	***
3.800	3	3	3	6	11	24	66	225	960	***	***	***	***	***	***	***	***	***	***
4.000	2	3	3	4	8	16	41	129	503	***	***	***	***	***	***	***	***	***	***
4.500	2	2	2	3	4	7	15	38	119	460	***	***	***	***	***	***	***	***	***
5.000	1	1	1	2	3	4	7	14	36	110	424	***	***	***	***	***	***	***	***
5.500	1	1	1	1	2	2	4	7	13	33	102	393	***	***	***	***	***	***	***
6.000	1	1	1	1	1	2	2	4	6	13	31	96	365	***	***	***	***	***	***
6.500	1	1	1	1	1	1	2	2	3	6	12	30	90	341	***	***	***	***	***
7.000	1	1	1	1	1	1	1	2	2	3	6	11	28	85	319	***	***	***	***
7.500	1	1	1	1	1	1	1	1	2	2	3	5	11	27	80	300	***	***	***
8.000	1	1	1	1	1	1	1	1	1	2	2	3	5	10	25	76	282	***	***
8.500	1	1	1	1	1	1	1	1	1	1	2	2	3	5	10	24	72	266	***
9.000	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	10	23	69	251
9.500	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	9	22	65
10.000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	9	21



## **APPENDIX C**